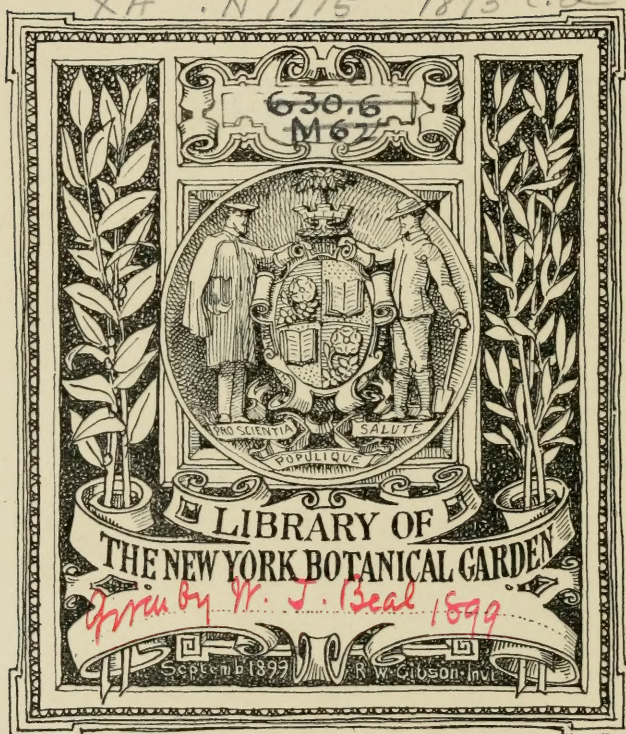
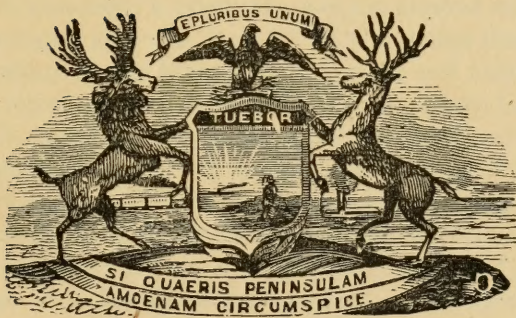


XA . N 7775 1873 C. 2



THIRD ANNUAL REPORT
OF THE
S E C R E T A R Y
OF THE
STATE POMOLOGICAL SOCIETY
OF
MICHIGAN.

1873.



BY AUTHORITY.

LANSING:
W. S. GEORGE & CO., STATE PRINTERS AND BINDERS.
1874.

THE DIGNITY OF INTELLIGENT LABOR.

INAUGURAL ADDRESS OF A. S. DYCKMAN, PRESIDENT OF THE MICHIGAN STATE POMOLOGICAL SOCIETY, DELIVERED AT LANSING, IN THE HALL OF REPRESENTATIVES, JANUARY 21st, 1873.

GENTLEMEN:—It has ever proved to be a wise statesmanship, that has protected and encouraged the productive industries of a country.

This historic idea seems now to enter into the counsels of all civilized governments,—so instead of Gladiatorial Games, and grand Tournaments, we have our “World’s Exposition,” presenting an aggregation of the most brilliant triumphs of labor and constructive genius.

Bringing the characteristic productions of each, come the representatives of all climes, to swell the magnificent pageant, in honor of the arts of peace. The princes of the earth become patrons of labor, vie in munificence, and condescend to grace the occasion with their presence.

In short, the world seems about to recognize that all true prosperity of the State must rest upon the foundation of *free* and *intelligent labor*.

In our republican system, where labor controls the sovereignty, we should have every facility for the growth of these elements of national greatness.

Fully to comprehend our needs, in this respect, we must first understand, that what distinguishes our civilization from primitive barbarism—the concrete body, so to speak, of our civilization—subsists not in the earth,—not in the air,—not in dead matter,—but in the *mind*,—in that mysterious receptacle of thought, where are garnered the rich treasures of experience; where the facts and deductions of science are made practical; and where reside the Genii that direct the operations of the material world to so many useful purposes.

The thought in the mind, must precede its application in practice. To improve the earth culture, the great pre-requisite is brain culture. You may develop only muscle, and turn out a *pugilist*; but you cannot produce a farmer.

In this field of operations, the essential materials are at hand, the muscular development is sufficient, but we want the wisdom to direct the vital forces of nature to the best results.

We have to consider this idea in relation to husbandry, an important branch of which is Pomology.

Perhaps there may yet be an occasional “Deacon Homespun” among farmers, who thinks he is a farmer by force of habit,—or by a sort of instinct— or that the operations on the farm proceed by a sort of spontaneous evolution, and who scouts the idea of scientific farming.

culture at all that the sooner it arrives at that destination the better. We allude to those plantations of trees with sod-bound roots, whose trunks, shaggy with dead bark and moss, unshorn branches struggling for a feeble growth, and dwarfed and sickly fruit, furnish only a paradise for birds and insects.

"Oh, reform it altogether."

The subject of marketing is only second in importance to production.

The ends to be attained are embraced in two leading ideas:

1st. Safety in the carrying of fruit.

2d. Reduction in the cost of packing, transportation, and sale.

The first depends almost equally upon careful packing by the producer and careful handling by the boat or railway lines.

The second must look mainly to the future for its realization; when the increased production will command the facilities for trade, and when the Alden, the Baltimore, and Williams processes of drying, and perhaps other improved methods, may be generally introduced, and especially after the expiration of their patents, when every neighborhood can have its drying establishment, or several of them on a cheap scale, to consume the surplus in an over-abundant year.

In cases where the average crop shall outrun the home demand, these dried fruits, with their cheap transportation, will seek more distant markets. With almost the freshness and flavor of green fruits, they will be furnished to the consumer at a much less cost, and will therefore go into more general use.

Thus drying, canning, and preserving will be the safeguard against over-production.

In the marketing of fresh fruits we have easy water communication to the valuable markets along the lakeside, while the railway lines are able to take the tender fruits of Michigan and lay them down in safety almost at every man's door in the Northwest.

You remember, and will not soon forget, the 22d and 24th of December last.

You know how our worthy President sat in his office at Cascade Springs, while the arctic wave came sweeping over the land, leaving its record of unprecedented cold, his heart yearning in sympathy with the stricken fruit-grower, as he exclaimed: "The State Fair of 1873 is gone; the State Pomological Society is gone; the Michigan Fruit Belt is no more." But soon came in the glad news from every quarter,—“The fruit crop is not destroyed,”—and he is here to tell you that Michigan comes out of this frosty ordeal with “all her blushing honors thick upon her,” and that we shall have a State pomological fair in 1873, and still bear *excelsior* upon our banner!

It seems desirable that our society make as full a representation as possible at the Vienna Exposition, to be held the present year,—and offer an earnest invitation and welcome to old-world patriotism, to bring the choice fruits of their industry to the grand decoration at the centennial birthday of our American liberties.

The American Pomological Society meets at Boston in September next. A full collection of our fruits, in charge of a suitable delegation of pomologists, should be there. This will be expected of Michigan, and with nothing less than this should we be satisfied: for Michigan in all laudable enterprises of national importance should send her quota.

In what cheaper or more effectual way could we bring the attractions of our soil and climate to public attention?

Among pomologists the idea is quite prevalent, that our important interest is not sufficiently represented at the Agricultural College.

That the members of the State Board of Agriculture and of the College Faculty are all friendly to this interest there can be no doubt,—and may we not hope soon to see in the College a Professor thoroughly versed in the science and practice of Pomology?

We congratulate the society upon the nucleus of a library already formed, and the prospective donation by T. T. Lyon of his valuable private library, upon conditions I trust soon to be fulfilled.

We submit to your consideration whether Horticulture and Floriculture, as kindred to Pomology, may not properly be included under the patronage of the same society.

Professor Cook told us at Grand Rapids about those little people we call insects,—that they too had discovered Michigan to be a fruit-producing land, and were following their discoveries with conquest of all the Southern counties. Since that time we have had a spy in the camp of the enemy, and find that in their winter quarters they are planning a crusade into the northern regions,—having particularly in view the extensive plum orchard of T. J. Ramsdell of Manistee; and will push their victorious armies as far as the eighty acre orchard of Geo. Parmelee of Old Mission. Their devastations are already alarming in many parts of the State. It seems necessary that one skilled in their peculiar warfare should take the field against them,—one that can do for Michigan what, for instance, Riley is doing for Missouri.

In view of the fact that the grain-grower is also vitally interested in the destruction of these sleepless enemies, which, by night and day, are sapping the foundation of our material prosperity,—to say nothing of mere scientific research,—it appears of the utmost importance that the Legislature provide for the appointment of a State Entomologist.

To a new society struggling into existence, perhaps the question of finance is the most difficult one. By dint of much earnest work, wherein our treasurer, Mr. Samuel L. Fuller of Grand Rapids, is deserving of particular mention, has our society been kept afloat in the financial world. Its usefulness as one of the institutions of the State is now fully demonstrated. If, therefore, a small annual appropriation were made from the State Treasury for a few years, to place the society upon an independent footing, the result will no doubt vindicate the wisdom of the Legislature in such action.

The series of monthly meetings held in different parts of the State, under the very efficient past management, have awakened a new interest, promoted good feeling between different sections, brought out many valuable contributions to our pomological literature, and been the occasion of profitable discussions. With brilliant display of fruits and flowers and flourish of trumpets, we sometimes grow enthusiastic, yet are we sternly practical.

We have seen the tide of emigration sweep by to the more inviting and susceptible soil of the great prairies. But Michigan, with her millions of uncultivated acres bristling with dark forests, and her deep bosom teeming with latent possibilities, is the rough diamond which must be worked to discover all the rich and beautiful treasures that lie hid beneath. Her soil, timber, genial climate, and unrivaled commercial advantages, with no doubtful promise, invite the emigrant to abide here. The bright future of Michigan must be wrought out by labor,—intelligent labor. But thank God, labor is honorable!

The State Pomological Society must figure largely in this work of bringing

to the surface in organized form the elements of beauty and utility; of clothing every hillside with green verdure and golden fruitage; and loading the soft air of summer with a thousand grateful odors.

In that future, may we not hope to see, among other goodly things, in perfection upon the altar of every household, the noble apple, the King of Fruit, beside the delicate peach, his blushing Queen; and the delicious grape in clusters of silver, and purple, and gold,—while the Christian graces are blooming in the garden of the heart, and the soul is lifted in thanksgiving to the bountiful Giver of all.

THE DISEASES OF THE PEACH TREE.

THE REPORT OF THE COMMITTEE ON THE YELLOWS IN THE PEACH.

[NOTE.—At the February meeting of the society, held at Battle Creek, 1873, a committee was appointed, to which was referred the question of the Yellows in the Peach in this State. That committee consisted of J. C. Holmes, formerly Professor of Horticulture in the Agricultural College, Hon. H. G. Wells, President of the State Board of Agriculture, and Hon. S. O. Knapp, also a member of the State Board of Agriculture. With them was associated Prof. R. C. Kedzie, Professor of Chemistry, of the Agricultural College. This committee made two reports, herewith submitted.

The first was made at Kalamazoo, in June, 1873, the other at Grand Rapids, in September, 1873. The one is a review of the general question, a statement of the cause and necessity of the institution of the committee, its working, plans, and operations, and with it are letters received from gentlemen residing in various parts of the State.

At the Kalamazoo meeting it was thought best that the Committee should take the field and personally inspect the peach orchards of the peach belt. The second, or supplemental report, details the travels, observations, and conclusions of the committee.

In this connection it was thought best to place before the peach culturists of the State the masterly essay of A. J. Downing on the subject of the Yellows. This is done with the cheerful acquiescence of Mr. Charles Downing. The whole report is a valuable collection of facts, histories, and conclusions, exceedingly complimentary to the industry and perseverance of the committee.—J. P. T.]

REPORT NO. 1.

READ ON WEDNESDAY EVENING, JUNE 25, 1873, AT KALAMAZOO, BY PROF. J. C. HOLMES, OF DETROIT, CHAIRMAN OF THE COMMITTEE, AT A MEETING OF THE STATE POMOLOGICAL SOCIETY.

MR. PRESIDENT AND GENTLEMEN :—The peach interest has become one of great importance in this State, not only to the peach-growers themselves, but to the State at large, and for many reasons. Among them we may mention the fact that there are but very few persons who are not fond of this delicious fruit, and we all like to see it so plentiful and cheap that the poorest as well as the wealthiest citizens may enjoy the luxury of a frequent feast of peaches ; therefore all are, or should be, interested in the present and the continued successful raising of peaches within the borders of Michigan.

THE PEACH INTEREST AND ITS TROUBLES.

Some disease seems to have attacked the peach trees in a portion of the great fruit belt that lies along the eastern shore of Lake Michigan, on the

western border of our State. The part of this strip of land already under cultivation and planted to fruits of various kinds, particularly the peach, has been brought to such condition at great expense of time, labor, and money; and at one time the investment bid fair to become an amply paying one, but, like almost every other enterprise, the peach-growing interest has its troubles.

The peach tree, being a native of a warmer climate than our own, is constitutionally tender; therefore it is more susceptible to disease and injury, when grown in our northern climate, than are our indigenous trees.

For the benefit of fruit-growers and fruit-eaters, this association has, very wisely your committee think, put forth its energies to investigate the causes of injury to trees, whether by insects or disease. Investigations have been commenced, and some valuable reports made thereon.

It is by study and close observation, and by familiar intercourse with each other, that we gain information upon these subjects. Through the researches of your committees from time to time, the lectures, and the familiar talks, and the exhibition of specimens of horticultural products at our periodical meetings, a vast amount of scientific, theoretical, and practical information has been elicited that has proved not only *interesting* to all who have had the opportunity of listening to the speakers, or reading the reports of the Society's proceedings, or of examining the specimens of horticultural products exhibited, but of great *practical* value also.

Diseases sometimes attack and destroy our trees in as unaccountable a manner as the cholera appears and disappears; in its course carrying off the old and the young, the rich and the poor alike of the human family; it sometimes seems to be contagious, and sometimes not; sometimes the cause of its spread seems to be atmospheric, and sometimes not. It is so with a disease that sometimes attacks and destroys peach trees, viz.: the Yellows.

THE NECESSITY OF THE COMMITTEE.

It is feared by some that this disease has already made its appearance among the peach trees of Michigan; therefore, it is of great importance to the peach-growers of this State that all the means within the power of this Society to command should be used to investigate the cause of any and all diseases that injure the trees, and to seek a cure therefor. For the furtherance of this object, the Society has, from time to time, appointed committees to investigate, and report the result of their investigations. Some very able reports have already been made, and the Society, hoping to collect further information, and to make some discoveries not yet reported, did, at its meeting in February last, adopt the following resolution, viz.:

"*Resolved*, That a committee of five be appointed, to consist of three Pomologists, one Microscopist, and one Chemist, to which shall be referred the question of the Yellows in the peach in our State; that they shall visit any district in which any accused disease may exist which may or may not be *contagious Yellows*; they shall cause careful microscopical and chemical investigations to be made of healthy and diseased wood, leaves, and fruit; also chemical analyses of soils which may aid in such investigations, and shall report at the meeting of the Society at the annual fair in 1873."

Under this resolution a committee was appointed. That committee commenced work at once by issuing the following circular, viz.:

TO PEACH GROWERS.

The committee appointed by the Michigan State Pomological Society, at its meeting in February, 1873, to investigate the subject of the *Yellows in Peach Trees*, and report thereon, respectfully submit the following questions to peach growers, in order to elicit information

respecting diseases that injure peach trees; also, the cause and cure, whether of Yellows or any other disease. An early reply from each person who receives this circular is requested, as the committee wish to make a partial report of their doings at the June meeting of the society, to be held at Kalamazoo.

Answers to be sent to J. C. Holmes, Detroit.

J. C. HOLMES,
S. O. KNAPP,
H. G. WELLS,
Committee.

1. Has any disease attacked the peach trees in your vicinity? If so,
2. Do you think that disease is undoubtedly what is known as the Yellows?
3. Where, in your vicinity, and under what circumstances, did the disease first show itself?
4. Judging from observation, do you think the disease contagious?
5. Have you any theory of your own with regard to the cause and cure of said disease? If you have, what is it?
6. Have you tried any experiments for a cure that seem to promise success; if you have, what are they?
7. Have you tried any experiments for a cure that have failed of success; if you have, what are they?
8. Have you ever noticed whether peach trees, having serrated leaves, are more liable to be injured by mildew, or from any other cause, than glandular-leaved trees?
9. Does the disease that is now affecting the peach trees in your vicinity, if any, attack both serrated and glandular-leaved varieties alike, or do you find that one resists the attack more persistently than the other?
10. Have diseased patches been noticed, by you, on the limbs of young peach trees before they have blossomed?
11. What is the character of the soil at your place?
12. What is the age of the oldest peach orchards in your vicinity?
13. Has the severity of the last winter had any injurious effect upon the peach trees in your vicinity?
14. What was the greatest degree of cold indicated by the thermometer at your place during the last winter, and at what date or dates?

REASONS FOR THE QUESTIONS.

Several copies of this circular were sent out, and some replies have been received.

The committee have been requested to make a partial report of their proceedings at this meeting. A complete report cannot at present be made, but the committee are willing to comply with the request and report progress.

In making this report, perhaps it would be well to say something in explanation of the questions propounded in the circular. It will be noticed that the committee have not confined themselves strictly to the subject of the Yellows, yet all the questions, and the remarks of the committee, have a bearing, either directly or indirectly, upon that subject.

QUESTION NO. 1.

Has any disease attacked the peach trees in your vicinity?

It is the desire of the committee to learn in what part or parts of the State any disease is at work among the peach trees, and where there is any, they ask in No. 2.

QUESTION NO. 2.

Do you think that disease is undoubtedly what is known as the Yellows?

This disease, called the Yellows because of the yellow appearance of the wood and the foliage, was noticed, as we find, by reference to Browne's "Trees of America," in the vicinity of Philadelphia, by Judge Peters, in 1790, or the year following. From perfect verdure, he states, the leaves of his trees turned

yellow in a few days, and their bodies blackened in spots. He attributed the disease to some morbid affection of the air.

In the same work we find an extract from an article written by Mr. Noyes Darling of New Haven, and published in the second number of the *Albany Cultivator* of 1845. He says: "There are two marks or symptoms, by which the presence of the disease is indicated. One is the shooting out from the body or limbs of the tree of very small, slender shoots, about the size of a hen's quill. The leaves upon these shoots are commonly destitute of green color, as if blanched, such as if grown in a dark cellar; and, like the shoots which bear them, are of diminutive growth, rarely exceeding an inch in length. These shoots do not usually start from the common, visible buds at the points where the leaves join the stem, but from unseen, latent buds in the bark of the trunk or large branches. The other symptom is, the ripening of the fruit two to four weeks before its natural season of maturity. Most generally, also, the fruit, whatever be its natural color, is more or less spotted with purplish-red specks. If shoots, such as above described, appear upon a tree, or without them, if the fruit upon any part of it (not wormy) ripens before the proper time, it may be certainly known that the tree has the Yellows. These are not the only marks or symptoms of the disease; but they are those which are the most readily discovered.

The ordinary leaves of the tree, or at least those upon the diseased portion of it, commonly undergo a slight change of color. Instead of a bright glossy green, they take on a dull yellowish tinge. The wood also, when the disease is considerably advanced, becomes unelastic, so that its branches, when moved by the wind, instead of the graceful waving of health, have a stiff, jerking motion. The fruit, the first season of attack, usually grows to its proper size. Whatever be the natural color of the fruit, red, white, yellow, or green, it is more or less, when diseased, colored with purplish red; generally in specks, or coarse dots. The flesh, quite to the stone, is often colored, and most deeply around the stone. In the first summer of disease it is not always that the whole tree appears affected. The slender shoots may show themselves on one branch only, the rest of the tree having every appearance of health. In like manner, the fruit upon one branch may ripen four weeks too soon, upon another, two weeks too soon, and upon the rest of the tree at the natural time. The second season, all the fruit will ripen three or four weeks too soon. The tree sometimes dies the next year after the appearance of the disease, and sometimes lingers along with a feeble life for two or three years. Soil, whether of clay or sand, whether moist or dry, whether cultivated or in grass, manured or unmanured, does not appear to me, clearly, either to increase or diminish the liability to disease."

QUESTION NO. 3.

Where, in your vicinity, and under what circumstances, did the disease first show itself?

There are several theories afloat respecting the origin of the Yellows at any given point, and this question is asked for the purpose of eliciting information from localities where the disease is supposed to exist, with regard to its introduction into that locality. Was it a sudden development of the disease among the trees of an apparently healthy orchard? Or did it first make its appearance among trees brought from an infected district? Were the stocks of the trees thus affected grown from pits of the fruit of diseased trees? Were the

stocks raised from pits from healthy trees and then budded with buds from diseased trees? These are queries that the question would suggest, and that the owner of a diseased orchard would be likely to notice, and trace out, with a view to avoiding a like course in the future.

QUESTION NO. 4.

Judging from observation, do you think the disease contagious?

Sometimes the word contagious is used in a pretty broad sense. Webster defines contagion thus: *Literally*, a touch, or touching. Hence the communication of disease by contact, or the matter communicated. *More generally*, that subtle matter which proceeds from a diseased person or body, and communicates the disease to another person. *Contagious*, containing or generating contagion; catching, that may be communicated by contact, or by a subtle excreted matter.

Now, if we find that by contact, or in some other way, the disease is carried from one tree to another, we may say the disease is contagious, though perhaps, strictly speaking, the kine-pox is not contagious. Yet it is communicated from one to another by inoculation, to prevent the taking of the small-pox by contagion, by the touch, the breath, or the immediate presence of a small-pox patient.

Perhaps question Number 10 would be in a more appropriate place than it now occupies in the circular, should it stand next to No. 4. For present use we so place it. It reads thus:

QUESTION NO. 10.

Have diseased patches been noticed, by you, on the limbs of young peach trees before they have blossomed?

In the article from which I have already quoted, the author says: "I took a blossom from a diseased tree, and applied the pollen to the blossom of a young tree in my garden. The tree thus exposed to infection showed no mark of disease, either in that or the succeeding year. I took some buds from a tree, having symptoms of the Yellows, and inserted part into peach, part into apricot, and part into almond stocks. Some of the inoculations took well, but all showed marks of disease the next season. The peach and almond stocks, with their buds, died the second winter after inoculation. One apricot stock lived five years, but its peach top grew, in that time, to be only about three feet high."

A. J. Downing says: "It was conjectured by the late William Prince that contagion takes place when the trees are in blossom, the contagion being carried from tree to tree in the pollen by bees and the wind." The Yellows sometimes first shows itself on a limb of a tree in close proximity to a fruit, hence the theory that the disease was received by that tree through the action of pollen brought from a diseased tree and deposited in the blossom of the healthy one by bees or the wind, thus infecting the tree through the blossom and the fruit. If it could be shown that these patches of disease are found upon young trees before they have blossomed, this fact would help to prove that the pollen theory is incorrect, therefore the question.

QUESTION NO. 5.

Have you any theory of your own with regard to the cause and cure of said disease? If you have, what is it?

This question needs no explanation. Its object is to obtain from peach cultivators their views with regard to the cause and cure of the Yellows.

QUESTION NO. 6.

Have you tried any experiments for a cure that seem to promise success ; if you have, what are they ?

This question is designed, as all will readily perceive, to obtain from cultivators a detailed account of experiments they have tried that seem to promise success in the cure of the disease, that all may profit thereby. Experiments have been tried, that for a time seemed to improve the condition of the tree, but ultimately failed to restore the tree to health.

QUESTION NO. 7.

Have you tried any experiments for a cure that have failed of success ; if you have what are they ?

Your committee think it is of considerable importance that experiments in Agriculture and Horticulture, that have failed to accomplish the object desired, should be recorded and made known, that others may not be at the trouble and expense of making the same experiments in the same way.

QUESTION NO. 8.

Have you ever noticed whether peach trees, having serrated leaves, are more liable to be injured by mildew, or from any other cause, than glandular-leaved trees ?

It is presumed that all who cultivate the peach to any great extent understand the difference between serrated and glandular-leaves, but there may be some in this audience who are not familiar with the terms or the leaves, therefore we bring here specimens of peach tree leaves that are serrated, toothed on the edge, like a saw, and without glands. Here are some leaves having small round or globose glands and nearly smooth on the edge, not serrated ; another term being given to the unevenness that appears here. Here are some leaves that have irregular, reniform, or kidney-shaped glands ; these leaves are not serrated or toothed like the first specimen. It has been noticed that peach trees having serrated leaves, without glands, are usually of slower growth and more subject to mildew than glandular-leaved varieties. I once had a peach tree called the Emperor of Russia ; the leaves were so deeply cut that it had a ragged appearance. It was of exceedingly slow growth, and mildewed so badly that, after three or four years labor in trying to make it grow, I gave it up as a bad job and destroyed it.

In Wood's Class Book of Botany, glands are thus described : "Glands are minute bodies of cellular tissue, situated on various parts of the plant, generally serving to elaborate and discharge its peculiar secretions, which are oily, resinous, saccharine, acrid, etc."

Gray says : "Glands. This name is applied to any secreting apparatus, like glandular hairs, only not raised on a stalk ; and also to other superficial appendages of diverse kinds."

What part, if any, the glands upon the leaves play in preserving the health and vigor of the peach tree, we do not know. It is a question that cultivators would do well to notice. If they find that glandular-leaved trees are more hardy and healthy than serrated-leaved trees, perhaps they would do well to discard the tender as fast as they can find more hardy substitutes for them.

We have read an article written as long ago as 1821, by a practical gardener in England, upon diseases of fruit trees. In speaking of what he calls blight in peach trees, he says : "Blight. Under this denomination are frequently confounded two varieties of disease materially different in their appearance, and which I shall distinguish by the appellation of *blister* and *curl*. The former is generally confined to such peach trees as have glandular leaves,

which are mostly subject to it in the month of April and May; and when attacked, it is not until the latter part of the season, if at all, that they become healthy. The leaves so attacked are crisp, and assume a swollen, crumpled, and succulent appearance; the shoots themselves are affected by it in the same manner, and never produce either good blossom or healthy wood. It is probably occasioned by the sudden contraction or destruction of the vessels, and extravasation of the sap, when cold, chilly winds and frosts immediately succeed warm sunshine, and soft genial weather; in such case the diseased shoots should be rubbed off where they can be spared; where not, the tops should be pinched down to the healthy part, which is generally at the lower end; and from the remaining eyes fresh shoots will push in sufficient time to ripen perfectly. The curl principally attacks those sorts of the peach which have leaves deeply serrated and devoid of glands, and it probably proceeds in part from the same causes which occasioned the blister, aided by the operation of drying winds. The leaves and tops of the shoots affected curl up and emit a saccharine secretion, which attracts the aphides; these, by extracting the juices of the leaves and shoots, destroy them, and the tree consequently perishes."

At a Pomological convention held at Buffalo, New York, in September, 1848, while the subject of Peaches was under discussion, the following remarks were made, viz.:

David Thomas stated that the White Imperial peach originated on his grounds, from the seed, it was believed, of the Noblesse.

Mr. Wm. R. Prince doubted whether it could have originated from the Noblesse, as the latter was a serrate-leaved variety, while the White Imperial was glandular-leaved.

Mr. Thomas stated in answer to Mr. Prince's remark, that he had raised other new varieties from cut-leaved peaches, among others a seedling from the Early Anne, a serrate-leaved variety, was marked with conspicuous glands.

Mr. Prince made some remarks upon the distinctive character of *glandular*, and *glandless* or *serrate-leaved Peaches*. "He said the leaves served as the medium of respiration to the vegetable kingdom, performing the same office as the lungs do in animals, and in like manner the glands on the foliage of peach and other trees serve the purpose of safety-valves to the constitution of the trees, by allowing such impurities as would otherwise injure their health, to pass off by the operations of nature, the whole process bearing a striking analogy to the workings of nature in case of certain internal diseases in the human body, which have a natural tendency to come out to the surface of the skin in various forms of excrescences. Where this natural curative process takes place in either case the constitution retains its health; but where it does not,—as in the place of glandless peaches,—the tree is liable to mildew, and in animals the malady is perpetuated. Serrated or glandless varieties of the peach are, therefore, more or less diseased, and are, consequently, less desirable and of much less value than those of a contrary character, and will, in time, be exploded from our gardens."

Mr. Hancock said "his friend Prince's doctrine was altogether novel. He would not gainsay it, but he would like to ask Mr. Prince how far the glands would go towards relieving peaches from the Yellows?"

Mr. Prince replied that he was not surprised to hear that the gentleman pronounced his statement novel, never having himself heard it from another, and never having previously expressed the same views, although they had received

his mental consideration. He stated that the glands would not relieve peaches from the Yellows at all. The Yellows is a disease which attacks all classes of peaches alike. It attacks peaches with glands as well as those without. It is analagous to the yellow fever, which attacks with equal virulence all races of men; black, white, copper colored, and yellow."

A gentleman commenting upon these remarks of Mr. Prince, says: "Some might suppose that Mr. Prince wished to convey the idea that the stunted, sickly appearance of peach trees with glandless leaves, was owing to an inherent or constitutional disease in such trees from their earliest vegetation. I do not think that Mr. Prince intended to be so understood; if he did, I think it would be difficult to defend his position."

That the character of the plant is early determined, even from the time of the impregnation of the flower, from which the seed is produced, I believe is now conceded by our best vegetable physiologists.

That the constitutional character thus formed may be impaired by disease at any time during the life of the plant, is self-evident; but diseases thus produced, and those that are constitutional, should be considered separately.

That those varieties of the peach, whose leaves are destitute of glands, are more subject to what is termed *blight* or *mildew* on the young shoots in the afterpart of summer has long been noticed; but as the mildew does not make annual appearance upon the peach tree until after the young fruit is formed, and its character, so far as the young plant to be produced from the seed is determined, we cannot conceive how this mildew, which is nothing more than a fungus plant, uncongenial in its growth by circumstances attending its locality, can have anything to do with forming a constitutional disease, and should therefore be considered an accidental injury, which, although it retards the growth of the young shoots after it fixes upon the tree, does not appear to injure the wood formed before the mildew makes its appearance. Trees of this description, although they do not extend their branches quite as rapidly as those having glands, are often as long-lived as any glandular varieties.

There are some serious objections, however, to many of the serrated varieties, as the Early Tillotson and some others, as on these varieties the mildew extends to the fruit, covering the skin with unsightly spots, and causing it to rot prematurely upon the tree.

A. J. Downing says: "It is well worth remarking that certain fine old sorts, the ends of the branches of which have a peculiar mildewed appearance (such as the old Red Rareripe, the Early Anne, etc.), which seems to check the growth without impairing the health, are rarely if ever attacked by the Yellows. Slow growing and moderately productive sorts, like the Nutmeg Peaches, are almost entirely exempt."

QUESTION NO. 9.

9. Does the disease that is now affecting the peach trees in your vicinity, if any, attack both serrated and glandular leaved varieties alike, or do you find that one resists the attack more persistently than the other?

The remarks just made will show that the subject matter contained in questions No. 8 and 9 is a very interesting and important one to peach growers; they also show the relevancy of the questions to the subject under consideration by the committee.

QUESTION NO. 10.

11. What is the character of the soil at your place?

It is possible that the character of the soil may have something to do with the origin and spread of the disease. Of course it is a very important question.

QUESTION NO. 12.

12. What is the age of the oldest Peach Orchards in your vicinity?

Upon some soils, and in some localities, and with the same treatment, the same varieties may excel in health and longevity those that are grown upon other kinds of soil, and in other localities. The answers to questions Nos. 11 and 12 may throw some light upon this part of our subject.

QUESTIONS NOS. 13 AND 14.

13. Has the severity of the last winter had any injurious effect upon the peach trees in your vicinity?

14. What was the greatest degree of cold indicated by the thermometer at your place during the last winter, and at what date or dates?

It has been said, and is generally regarded as a fact, that when the weather is so cold as to cause the mercury to fall to 10° or 15° below zero, it will prove fatal to peach buds, and sometimes to the trees themselves.

An opportunity now occurs to prove or disprove this assertion and to place the result on record. It also gives an opportunity to show whether young or old trees have stood the cold the best; and what effect it has had upon diseased trees as compared with healthy ones.

GENERAL OBSERVATIONS.

The Yellows appears to be of American origin; we cannot find that it is known in other countries.

In the Horticulturist, volume 4, page 16, 1849, in an article by H. W. Sargeant upon what he saw at the London Horticultural Society's garden, he says:

"In a conversation which I had with Mr. Thompson on the diseases of fruit trees, he told me that our great peach enemies, the Yellows and the peach worm, are alike unknown here. He has seen one instance only of a disease in the peach tree resembling in its character the Yellows. It was an American tree, I think a George 4th, which was budded on a peach bottom, and trained against a south wall. It ripened its fruit prematurely, pushed out the clusters of small, narrow leaves, became quite yellow in foliage, and finally died. He attributed it to the fact of its being worked on a peach instead of a plum bottom, as all the other trees in the society's garden are; and he suggested that we should always bud our peaches on plum stocks.

"I think, however, the disease he referred to was probably imported in the tree from America. If so, it does not seem to have communicated the Yellows to any of the English trees."

In a foot-note to this article, the editor, A. J. Downing, says: "We are every day more convinced that the Yellows is nothing more than a constitutional languor, brought about, as we have before suggested, by poor soil and bad culture for several generations. It has nearly disappeared in our neighborhood, where there are now (1849) trees sixteen or eighteen years old, bearing every year very fine crops of delicious fruit."

Many theories have been started respecting the cause of the Yellows, but your committee, not having had opportunity to observe and investigate the subject to the extent desired, do not propose at this time to express their own views as to the cause, or to recommend any special course to be pursued to effect a cure of this singular disease.

Your committee have been requested to read, as a part of this report, the answers that have been received to the circular. As we know of no objection to pursuing this course, we comply with the request, and now proceed to read them in the order in which they were received.

THE LETTERS.

MR. PRESIDENT,—Early in the spring of 1872 your committee on the Yellows in peach trees, issued the following circular. In answer to the circular, the letters annexed were received; and in giving such answers, reference is made by numbers to some of the questions contained in the circular.

CIRCULAR TO PEACH GROWERS.

The committee appointed by the Michigan State Pomological Society, at its meeting in February, 1873, to investigate the subject of the *Yellows in Peach Trees*, and report thereon, respectfully submit the following questions to peach growers, in order to elicit information respecting diseases that injure peach trees; also, the cause and cure, whether of Yellows or any other disease. An early reply from each person who receives this circular is requested, as the committee wish to make a partial report of their doings at the June meeting of the Society, to be held at Kalamazoo.

Answers to be sent to J. C. HOLMES, Detroit.

J. C. HOLMES,
S. O. KNAPP,
H. G. WELLS,
Committee.

1. Has any disease attacked the peach trees in your vicinity? If so,
2. Do you think that disease is undoubtedly what is known as the Yellows?
3. Where, in your vicinity, and under what circumstances, did the disease first show itself?
4. Judging from observation, do you think the disease contagious?
5. Have you any theory of your own with regard to the cause and cure of said disease; if you have, what is it?
6. Have you tried any experiments for a cure that seem to promise success; if you have, what are they?
7. Have you tried any experiments for a cure that have failed of success; if you have, what are they?
8. Have you ever noticed whether peach trees having serrated leaves are more liable to be injured by mildew, or from any other cause, than glandular-leaved trees?
9. Does the disease that is now affecting the peach trees in your vicinity, if any, attack both serrated and glandular leaved varieties alike, or do you find that one resists the attack more persistently than the other?
10. Have diseased patches been noticed, by you, on the limbs of young peach trees before they have blossomed?
11. What is the character of the soil at your place?
12. What is the age of the oldest peach orchards in your vicinity?
13. Has the severity of the last winter had any injurious effect upon the peach trees in your vicinity?
14. What was the greatest degree of cold indicated by the thermometer at your place during the last winter, and at what date or dates?

LETTER FROM E. D. LAY.

YPSILANTI, March 11th, 1873.

SIR:—Yours of 8th inst. was received. In answer I have to inform you that I have not had any experience in the disease called the Yellows, in peach trees. I recollect that about thirty-five years ago there was considerable written upon the subject, but I do not now remember that there was any definite conclusion reached respecting the cause of the disease. I was told by a nurseryman near Rochester, N. Y., that if I saw anything of the kind among my trees to destroy the diseased trees immediately.

I find in "Floy's Orchardist," published in New York in 1833, the following:

"The peach trees of late years are subject to a disease called the Yellows, from the circumstance of the trees having a yellow, sickly appearance. Much philosophy has been spent on this subject without arriving at any definite conclusion. I shall hazard an opinion on the nature of the disease by stating some observations made in the spring and summer of 1832. The fall of 1831 was mild, and growth was prolonged until the middle of November. At the end of

that month and the beginning of December the cold weather set in very suddenly, the thermometer sinking till it fell below zero, in New York, and to the north and east of us, eight or ten degrees below. Many young pear and cherry trees were killed. Peach trees in similar situations were not killed, but many of them were injured; this did not prevent them from putting out leaves, blossoming, and bearing fruit. In the summer the leaves grew weak, and of a yellowish, sickly appearance. In the spring, to all outward appearance, the trees had sustained no injury, but in cutting the shoots a blackness appeared in the heart; in some quite black, others had black dots around and in the pith. Some of the trees I cut down to the budded part and discovered that the same blackness of heart appeared as in the small branches. Others I left standing they put out leaves and fruit. The fruit ripened prematurely and was tasteless. I think those trees had the Yellows, and that the weather of the previous fall and winter was the cause of it.

The "Orchardist," published in Boston in 1833, by Kenrick, says the disease is not known in New England.

Mr. Cox says: "The malady which destroys much the largest portion of the trees has hitherto baffled every effort to subdue it; neither cause or character of the disease appear to be understood. I think the disease is contagious, and trees should not be planted on the same ground for years. The only remedy I know of is to destroy the trees immediately."

Now my opinion is that the Yellows is a mystery as much as the pear blight is, and I think that if the idea that late growth and severe winters be correct, trees in this part of Michigan would have had the Yellows many years ago.

E. D. LAY.

LETTER FROM A. S. DYCKMAN.

SOUTH HAVEN, March 30th, 1873.

SIR:—Yours of the 27th inst. is at hand. I think a good suggestion is made by Doctor Woodman of this place, to determine whether the disease known as the "Yellows" is carried into the circulation through the blossom, by selecting a healthy tree standing near those that are affected, and carefully remove the blossoms before they open. If the tree should not become affected, and the experiment tried in a number of different situations with the same effect, the evidence would be strong in favor of the theory that the disease is propagated through the blossom, and may be spread by bees and other insects. In that case the disease might be checked by destroying the blossom buds when about to open. Or, if this should prove not practicable, a very interesting fact would be demonstrated.

There are places in this State where I think these experiments could be very successfully made. If it should appear also that young trees do not become affected before blossoming, this fact would tend to corroborate the theory.

As to our own locality, my attention was not called to the subject until last season. At that time the committee on orchards could not find any indications of the disease among my trees. Only a few trees in other orchards in this vicinity have been under suspicion, and those have either been destroyed or marked for destruction. We will keep close watch the present season and be able to report fully for our locality.

We have tried no experiment for the cure except the axe.

Peach trees having serrated leaves are more liable to mildew than glandular

leaved varieties, but I cannot say that it affects their longevity, as they recover with age. Nearly all our trees, however, have glandular leaves.

Very truly yours,

A. S. DYCKMAN.

LETTER FROM A. R. NOWLEN.

BENTON HARBOR, April 8th, 1873.

GENTS:—Our peach trees in most localities are being injured by what many suppose to be the "Yellows," though our actual loss in consequence is comparatively trifling. Judging from the description given of the disease by reliable authors, my impression is that the disease is rightly named, although Doctor Hull, of Alton, Ill., and some other good fruit men who have taken observations here will not admit that it is the Yellows, it being quite unlike that which is known as the Yellows in Illinois and other sections.

I think the disease made its appearance five years ago for the first time, and in various orchards several miles distant from each other simultaneously. I think I have good reason to believe the disease contagious, though many, and I think the majority here think otherwise, and I will further say that I am fully persuaded it is epidemical, partly because of what I learn of its workings in New York and New Jersey; but mainly from my own observation here.

During the first two years trees attacked would die, or nearly so, the second year, but the last two years most of my trees that were affected lost but little of their vitality. I noticed the last season especially that my diseased trees were more vigorous than they were the year previous. This may have resulted in part from thorough pruning, but not wholly so, as I noticed the same thing in orchards that were comparatively uncared for; hence my opinion is that the disease is on the decrease.

I have, perhaps, no well defined theory as to the cause of the disease, but I am quite sanguine that the sap is first affected. I judge this in part because branches of affected trees, in contact with branches of healthy trees, impart the disease to the healthy ones, and it is often the case that one or two branches of a tree will be affected while other parts are sound during the entire season. These are but slight reasons, but then there is another which I infer from the effect of treatment.

I have tried a number of experiments. I treated several hundred trees with hot water and ashes around the roots with no apparent effect. I treated healthy and diseased trees alike, as it is a very good way of destroying the borer. This application I made in the summer of 1871.

Last season, among other things, I sprinkled hot water on the branches and trunks of two diseased trees that had fruit on them. This was done about the 26th of August. In eight or ten days thereafter the fruit on these two trees had turned to the natural flavor, and, although one of the trees was diseased in 1870, both are to-day, perhaps, as healthy as any trees I have. The change for the better was so unmistakable that I immediately proceeded to treat most of my trees with hot water, and instead of pouring it on the roots I applied it to the trunk by turning it on at the forks, heating the bark of the entire trunk to the branches. I used about eight quarts of water to a full sized tree. This would heat the bark too hot for the naked hand. I think that more than eight quarts would do no harm. I tried this experiment too late in the season to affect the fruit; indeed most of the fruit had been gathered. My theory is that the diseased sap is restored to its natural state. I expect to con-

tinue the same treatment if the disease shows itself on my trees the coming season. A neighbor of mine claims that he has restored several trees by the application of ashes and hot water to the roots, but, usually this is a failure.

As to mildew, I have known but one variety to be affected and that is the Serrate Early York. The disease that troubles our trees affects the serrate and the glandular-leaved trees alike, as far as I have observed.

I will add that commonly, though not always, the disease first shows itself in the fruit, sometimes attacking all on the tree at once, but generally it affects one or two branches, then spreads gradually over the tree. The fruit ripens from two to three weeks in advance of its season, assumes a darker and deeper red color on the surface than is natural, also a mottled red color of the flesh, and affecting more or less the blossom.

Trees on poor, dry soils yield more readily to the disease than on moist, rich soil, though trees of all ages and on all soils suffer.

A. R. NOWLEN.

LETTER FROM L. COLLINS.

ST. JOSEPH, April 2, 1873.

SIR:—Yours of the 26th ult. was duly received. Mr. Chamberlain, Secretary of the Berrien County Horticultural Society, will answer your letter. He is as well qualified, and perhaps better than any one in this vicinity, to answer all your questions in your letter.

I have paid some attention to the raising of the peach. We have the disease called the *Yellows* without any doubt among our trees, and that to an alarming extent. I have lost one orchard of 800 trees entirely by the disease. I will send you a few branches from a three-year-old peach tree of Early Crawford,—it had a few peaches on last year, and every peach showed the disease, but the foliage looked healthy. I will likewise enclose a few branches from an old tree of Late Crawford that has had the *Yellows* two years and will die this year.

Respectfully yours,

L. COLLINS.

LETTER FROM J. E. CHAMBERLAIN.

GENTS:—Your letter of March 26th to Dr. Collins, containing inquiries in regard to "a disease that seems to have attacked the peach trees in some parts of the great fruit belt, lying along the south-western border of our State," has been handed to me, with the request that I would, as secretary of the St. Joseph Fruit Growers' Association, and also one of the vice-presidents of the Michigan State Pomological Society, prepare an answer. This subject is one which interests not merely south-western, but all the fruit belt of western Michigan, north and south; for if premature ripening of fruit is the evidence of the disease termed *Yellows*, then this disease extends *north* and *south*, through *all the fruit belt of western Michigan*. At the pomological exhibition at Grand Rapids last year, at which the St. Joseph fruit region was entirely unrepresented in the fruit display, I noticed peaches on exhibition with all the marks of premature ripening so far as it was possible for external marks to show disease; and I spoke to Hon. J. P. Thompson, then president of the Society, on the subject. Mr. Thomas Archer, nurseryman, of St. Joseph, informs me that he observed the same marks of premature ripening; while Mr. A. D. Rowley, fruit grower, not only observed the same prematurely ripe peaches on exhibition, but visited Spring Lake on purpose to see the orchards, and found trees which he pronounced *unmistakably diseased with the Yellows*. These

facts were known to us last fall, but none of the fruit growers in the southwestern fruit belt of Michigan were inclined to publish abroad this unpleasant fact, because of the injury that might thereby be done to the Spring Lake and all intermediate fruit regions, and because our own fruit growers are by no means convinced beyond a doubt that this is the true Yellows, and claim for the whole fruit belt of western Michigan, north and south, St. Joseph, Coloma, Watervliet, South Haven, Saugatuck, Holland, Spring Lake and Muskegon, the benefit of the doubt. For six successive years the bearing peach trees of all the Michigan fruit belt, particularly the peach trees of the St. Joseph fruit belt, which number upwards of 600,000 trees, have borne large crops of peaches without any rest. So great has been the overbearing, that tree and soil have been taxed to the utmost, to mature, ripen, and sustain the enormous burden of fine fruit. The season of 1869 was wonderfully prolific, and the last season of 1872 would have been far beyond the unstinted abundance of 1869, had not such a drouth prevailed. Here attention should fix upon the fact that neither in 1870, nor 1871, nor 1872, has Western Michigan enjoyed its usual quantity of rainfall. The drouth of 1872 fell upon the trees with the withering power and the blighting properties of an Arabian Sirocco. Flowers burned up; corn shriveled; shade trees starved for water; and it was notorious that Michigan peaches were poorer than ever before in the history of the fruit belt. All the late peaches withered, their skin wrinkled around the pit like the skin folds on an Indian squaw, and no one imagined they would be fit to pick. At last one good heavy rain came which gave new life to the trees, revived the drooping foliage, sent rich juices into the fruit and increased the grand total of the crop at least 200,000 baskets. These deleterious influences affected alike *all parts of the fruit belt, north or south*. The winter of 1872-3 has been exceptionally cold, teaching a lesson as to the possibility of extreme cold upon the western shore of Michigan unimagined heretofore. Hundreds of peach trees are dead, but whether from overbearing, freezing, or Yellows, will probably never be known. It may be safe to assert that the great majority of old peach trees that went into the winter with an impaired vitality are now dead and will be burnt. The St. Joseph Fruit Growers' Association having had its attention drawn thereto by Dr. Hull, of Alton, Illinois, during his visit to this fruit region in 1869, took up the subject of Yellows in 1870 and appointed a committee consisting of J. E. Chamberlain, John Whittlesey and M. W. Manning, to prepare a short history of the Yellows and send the same to every fruit grower in the St. Joseph fruit region. The following was a part of the report of the committee:

"The original cause of the disease, as given by Downing, and believed by many intelligent horticulturists and fruit growers, is as follows:

"The malady called the Yellows is a constitutional fault, existing in many American varieties of the peach, and is produced in the first place by bad cultivation and the consequent exhaustion arising from successive over-crops; second, afterwards the disease has been established and perpetuated by sowing the seeds of enfeebled trees, either to obtain varieties, or for stock.

"About 1800, or a few years before, attention was attracted in the neighborhood of Philadelphia to the sudden decay and death of the orchards without apparent cause. From Philadelphia and Delaware the disease gradually extended to New Jersey, where, in 1814, it was so prevalent as to destroy a considerable part of all the orchards. About three or four years later it appeared on the banks of the Hudson. From 1812 to 1815 it gradually and slowly extended northward and westward to the remainder of the State.

"Poor soil and over-cropping, together with careless or indifferent culture, will develop the disease when already latent in the trees; and this is a predisposing cause.

"SYMPTOMS OF THE DISEASE.

"The production upon the branches of very slender, wiry shoots, a few inches long, bearing starved, diminutive leaves. The leaves are very narrow and small, quite distinct from the natural size, and are either pale yellow or destitute of color.

"The premature ripening of the fruit. This takes place from two to four weeks earlier than the proper season. The first season of the disease it grows nearly to its natural size, but is always marked externally (whatever may be the natural color) with specks and large spots of purplish red. Internally the flesh is more deeply colored, except around the stone.

"Either of the foregoing symptoms (and sometimes the second appears in advance of the first) are undeniable signs of the Yellows.

"MEANS OF DISSEMINATION.

"By the intermingling of healthy roots with those of diseased trees.

"By planting a healthy tree in a hole from whence a diseased tree has recently been removed.

"By a knife, in taking out grubs, or in pruning healthy and diseased trees indiscriminately.

"By propagation,—budding from diseased trees, or budding on stocks grown from diseased pits.

"Also, though this opinion is by no means approved, by the wind, and by the bees and insects."

This, after a most thorough examination, was the extent of the information to be had from documents, books, and authorities on the subject of the Yellows. No person in this fruit region had any practical acquaintance with the disease, and might have sent, *just as did the fruit growers of Northwestern Michigan*, diseased fruit to a pomological exhibition, thinking it a *true* variety or a *new* variety; indeed, the great majority of the fruit growers in the St. Joseph fruit region regarded the subject unworthy of serious consideration. The article had, however, the effect of creating a general interest, and close observers directed a careful eye to every enfeebled tree. Mrs. Wilson, a colored woman, poured boiling suds upon a peach tree and made it thrive. Rosa Smith Horsey, another colored woman, claims she cured a diseased tree with hot water and ashes. Rev. Mr. Taylor used hot water and ashes upon his trees with beneficial effects. Mr. W. H. Judson, P. O. Benton Harbor, treated his trees to ashes and good manure, and though some persons pronounced them fatally diseased, he nevertheless secured one of the best paying crops, and, as he claims, as perfect a crop of fine fruit as the trees ever produced. Mr. A. R. Nowlen, P. O. Benton Harbor, tried various remedies on different trees, and found the application of simple hot water to the top and branches of a peach tree produced a decided effect in checking the progress of the disease. It restored color to the leaves of the trees, and caused the fruit to ripen well.

Mr. M. S. Owen of Benton, P. O. Benton Harbor, found great benefit to his orchard by slitting the bark of the trunk and limbs of the peach tree, whereby the ligature of the bark was relieved and a new healthy bark formed. Mr. Owen claims that by this simple treatment the Yellows may in every instance

be kept out of young orchards. It is certain that Mr. Owen's orchard is unsurpassed by any in the town of Benton.

Mr. Clark, nurseryman of St. Joseph, P. O. Benton Harbor, informs me that under his personal observation the application of hot water and ashes revived a tree and produced a new liber. The Yellows invariably appear on the outer limbs, and generally in a single branch, which merely ripens a few peaches prematurely. Thence it spreads slowly over the whole tree, consuming three, four, and even more years, before absolute death ensues.

In the orchard of John T. Edwards, diseased peach trees grafted upon plum stalks were entirely destroyed by the Yellows without injuring the root at all; below the graft the live, healthy root sent out strong plum stalks.

Thomas Taylor, microscopist of the Washington Department of Agriculture, made experiments in July 1872, which are reported in the monthly report for August and September, page 387, in which he claims to have discovered the cause of the Yellows in the spiral thread-like fungus, known as *noemaspora*. The spores resembled caraway seeds, so small as to be invisible to the naked eye, which when treated to the action of nitric, muriatic, and nitro-muriatic acids, received no damage, but continued their life-like motion. When, however, these spores were combined with concentrated sulphuric acid, or caustic potash, they become entirely destroyed, and their organic structure was no longer visible.

Mr. Taylor's conclusions were these: First, rain will wash these fungi spores over the tree; second, the action of sulphates and acids will destroy them; third, the application of hot lye and washes to the bark and roots of the tree will probably prove curative.

On the 368th page of the same report, a minute, two-winged fly, called the *Mycetobia* (*Mycetophila*) *persicae*, is described, and this remark appears incidentally, "*several of this genus feed upon fungi*." Similar two-winged flies are found in our orchards. Now, if these flies feed on fungi, and if they feed upon the spores of the *noemaspora*, if *noemaspora* fungus is the cause of the Yellows, the disease, Yellows, from its first appearance on the outer limb of a peach tree, is accounted for. Here is a field of investigation for our State Entomologist, if we had one. The result of our studies and investigations can be thus summed up: the Yellows may be contagious, but our experience does not confirm the idea of contagion. The Yellows does not depend upon the soil; though a poor soil and bad cultivation will accelerate the disease. No absolute cure has been discovered for the Yellows, though the application of hot water and ashes has in many instances checked the progress of the disease, produced new foliage and ripened a good crop of fruit; and while the necessity of destroying every slightly diseased tree in order to protect an orchard is an open question, it is perfectly safe to dig up and burn every old case of the Yellows.

We have great confidence in the Owen method of treating a young orchard, and are confident that the Yellows may be regarded as half shorn of its terrors, and is shortly to be so well understood as to no longer be a terror to fruit orchards. The St. Joseph fruit region, and the fruit region of Southwestern Michigan are indignant at any attempt to localize the disease of the Yellows exclusively in their section; because we know it exists both in Northwestern and Southwestern Michigan. We do not believe it will exterminate our trees any more than are the trees of Delaware and New Jersey exterminated. We have not less than 600,000 peach trees by actual count in that part of the

Southern Michigan fruit belt which finds its outlet at the mouth of the St. Joseph River, and expect to supply the large demand for peaches in the whole Northwest for many years to come, Yellows or no Yellows.

I am, gentlemen, yours most truly,

J. E. CHAMBERLAIN,

*Vice President Mich. State Pom. Soc'y
and Sec'y St. Joseph Fruit Growers' Association.*

St. Joseph, April 12th, 1873.

LETTER FROM T. T. LYON.

PLYMOUTH, May 21st, 1873.

Hon. J. C. HOLMES, Hon. S. O. KNAPP, Hon. H. G. WELLS, *Committee on the Yellows:*

DEAR SIRs:—Your circular asking replies to certain queries is received, and although I hardly suppose an answer was expected in my case, I will take occasion to say, I presume the *real purpose* of the society in the appointment of your committee was to identify the disease alleged to exist at St. Joe, by the action of a committee such as shall command respect and confidence. Certainly I consider the effort to discover *a specific for the cure of the Yellows* very much like the efforts of our forefathers to accomplish the transmutation of the baser metals to gold, or their search after the fountain of perennial youth. Still, if Wolverine science and acumen shall be able to accomplish, what for more than fifty years has eluded the associated science, observation, and experience of the East, in the solution of this problem, I shall feel that we have a committee *worthy* and doubtless *competent*, to at least undertake that other problem that has so long kept the pomological world agog, viz.: the pear blight; and even to determine the question associated with it, if not involving its solution, whether fungoid growth is the cause or the result of blight. But to proceed to consider your queries—

1st. The chief disease afflicting the peach tree in this locality may more properly be said to be a disease of the *climate*.

2nd. It is undoubtedly *not the Yellows*.

5th. I accept the theory respecting the Yellows, as long prevalent at the East, that it is, at least, in part, constitutional, and that it is contagious.

8th. I have rarely, if ever, known mildew to attack other than serrate-leaved varieties of the peach. We have no other disease, so far as I have observed, that seems to attack one class of varieties more than another.

9th. The only other disease affecting peach trees here, so far as I have observed, is the "leaf curl,"—apparently the result of cold or damp weather occurring while the foliage is yet tender. This disease seems to affect all varieties equally.

10th. No.

11th. We have all varieties of soil from light sand to heavy clay—and oftentimes all occur in a single field.

12th. Our oldest peach orchards are not far from twenty years of age.

13th. Some trees appear to be badly injured—others very little. The most vigorous trees have escaped the best.

14th. From 25° to 30° as indicated by different thermometers.

All which is respectfully submitted.

T. T. LYON.

LETTER FROM C. ENGLE.

PAW PAW, May 22d, 1873.

GENTS:—There is no general disease of the peach trees in this immediate vicinity. A few trees die each year from the effects of the borer, and from other causes. I saw some blossoms on my early Crawford and Hale's early to-day. My Barnard and Heath Cling trees are blossoming pretty full.

My answer to question No. 8 is, that serrate-leaved peach trees are more liable to mildew than glandular-leaved varieties.

No. 11. Gravelly loam.

No. 12. Nine years.

No. 13. On ordinary level land nearly all trees are killed; on hills, none.

No. 14. On the 22d of February, 22° below zero; on the 24th, 24° below, and on the hill where the orchard stands, 4° less.

Yours, etc.,

C. ENGLE.

LETTER FROM I. S. LINDERMAN.

PLEASANT VIEW FRUIT FARM,
CASCO, Allegan County, Mich., May 23d, 1873. }

GENTLEMEN:—Your circular to peach growers is received, and I will answer with pleasure.

1st. None that I am aware of.

4th. I have never seen any of the Yellows that I am aware of.

5th. No theory of my own, as I have had no experience with the disease.

10th. I have not noticed anything of the kind.

11th. Sand, loam and gravel intermixed on my place.

12th. About 12 years; but many trees are 15 or 20 years old in the vicinity.

13th. Not to any great extent. Some trees are injured and a few are killed, but generally appear healthy, with a fair show for fruit.

14th. December 23d last, 13° below zero, December 25th, 14° below, February 23d, 8° below.

During the past winter there were nine days that the thermometer indicated below zero.

Respectfully submitted.

I. S. LINDERMAN.

P. O. Address South Haven, Mich.

LETTER FROM HANFORD & CO.

BRISTOL, Indiana, May 27, 1873.

GENTS:—We give the following answers to the circular received from you:

To question No. 1 we answer that there is no disease among our peach trees.

No. 8. They are.

No. 11. Sandy loam, with porous sub-soil.

No. 12. Twenty years.

No. 13. On old trees, but not fatal to any.

No. 14. 26° below zero about January 9th.

HANFORD & Co.

LETTER FROM HENRY S. CLUBB.

GRAND HAVEN, May 28, 1873.

GENTS:—I submit the following answers:

No. 1. The curled leaf is the only disease.

No. 2. No.

No. 8. No.

No. 10. No.

No. 11. Sandy soil on hills; black mould on the flats.

No. 12. Fourteen years.

No. 13. Yes, especially on old trees. Young trees have not been much injured, except to fruit buds. I have a seedling tree with blossoms all over it. The peach crop will be light.

No. 14. The lowest temperature recorded at the U. S. signal station at Grand Haven was on the 28th day of January at 10:25 P. M., 12° below zero.

HENRY S. CLUBB.

LETTER FROM C. J. DIETRICH.

GRAND RAPIDS, Kent Co., May 29, 1873.

GENTS:—No. 1. I do not know that any disease has attacked the peach trees in this vicinity.

No. 13. It has killed very many trees, yet we shall have peaches in Kent county this year.

No. 14. December 24th, 33° below zero.

Respectfully,

C. J. DIETRICH.

LETTER FROM D. R. WATERS.

SPRING LAKE, Mich., June 2, 1873.

GENTS:—A copy of your questions forwarded by yourself to Hunter Savidge, or to him through Mr. Thompson, has been placed in my hands by Mr. Savidge, for answer. I pass over your first seven questions by saying we have not the least sign or indication of the Yellows here. In reply to your 8th interrogatory, I can say that I have noticed no mildew in peaches here, but in the Serrate Early York; this variety mildews every year with us. I pass again to your 11th question and answer that our soil is a sandy loam, in places gravelly, in others underlaid with clay. Our oldest orchards have been planted twelve years, but there are trees in yards and gardens much older and healthy.

I think the severity of the winter has injured us some, but how much cannot now be certainly stated. Quite a number of trees no older than three years have been killed, and many older trees show signs of weakness. Orchards differently located are differently affected. Those on an eastern and southern exposure, are without a sign of injury to-day; those on a perfect level are but little affected; those on uneven ground and exposed to northern winds, are injured most. I cannot think that the winter, however, has caused the death of many of the trees that are dying. The trees to which I refer have live bodies and limbs but are girdled at the crown of the root with dead bark, the root being alive also; they leave out in a weak way and die after a few weeks. Others have live bodies and limbs but dead roots; that is, these trees are alive in the parts exposed to the cold, but dead where protected by several feet of snow. Nineteen degrees below zero was the greatest degree of cold experienced at my place last winter. This was felt between 11 P. M. and 1 A. M., during the night of January 29th.

Peaches we will have a few; grapes a nice crop; cherries are promising finely; apples never better; pears loaded and unhurt; plums also are promising a full crop; quinces a full crop in favorable spots; small fruits are entirely unhurt and promise a great crop; our woods are full of blackberries and huckleberries setting full of fruit.

Yours truly,

D. R. WATERS.

LETTER FROM S. B. PECK.

MUSKEGON, June 7th, 1873.

GENTS:—Your circular in relation to peach trees is received. In answer to queries from number one to seven, inclusive, I have to say that there is no "Yellows" in my orchard.

No. 8. The Serrate Early York mildews and generally bears but little fruit. All our seedlings that show mildew we lay to that parentage.

No. 9. Have seen mildew on no other variety.

No. 10. No, but I have noticed the ends of the new growth to be killed in May and June by a very small insect. I think a worm.

No. 11. Light sand down ten to thirty feet to water.

No. 12. Planted in 1861 and 1862.

No. 13. Young trees, one year old, are generally killed, and many large limbs are dead on old trees. Very few blossoms except on trees on the highest ground.

No. 14. I cannot tell with certainty, but think about 15° or 16° below zero.

My own peach trees are on rather flat land, with higher ground between them and the water, and all the show of fruit this season—very little at best—is on the highest part.

Peach trees on my ground have stood the winter as well as in the winter previous, and grape vines very much better. All fruits but peach appear promising.

Yours,

S. B. PECK.

LETTER FROM JAMES D. HUSTED.

LOWELL, Mich., June 16th, 1873.

GENTS:—In answer to the inquires contained in your circular, I make the following answers:

No. 1. Our peach trees are not diseased.

No. 2. The disease known as the "Yellows" is not known here.

No. 8. The varieties of peach having serrated leaves without glands are much more subject to attacks of mildew than glandular varieties, and as this mildew prevents the wood from maturing, the varieties of this class of trees are more liable to be injured by winter; then, diseases follow as a consequence.

No. 10. No.

No. 11. Clay loam, timbered openings.

No. 12. Fifteen years.

No. 13. The cold of last winter injured the tops of nearly all the peach trees in this section. One orchard, containing one thousand trees, seven years old, we cut back one-third of the top; all these trees are now making a vigorous growth; none lost, but no fruit. Another orchard, about in the same condition, age and situation, not cut back, is bearing a light crop of peaches; none are killed, but the new wood is starting too much on the end of the branches, leaving the center of the trees thinly supplied with leaves.

No. 14. On the 24th of December, at 8 o'clock A. M., the thermometer stood for a short time at 24° below zero, gradually rising to 16° below. At this point it stood nearly all day.

Respectfully,

JAMES D. HUSTED.

LETTER FROM S. L. MORRIS.

HOLLAND, Mich., June 2, 1873.

In reply to your inquiries relative to the peach and its affections in this vicinity, especially what is termed the *Yellows in peach trees*, I would state that this disease is unknown to horticulturists here. I have never had any experience with it, and hence I have no practical information to impart, having reference to the first seven questions asked. Regarding question No. 8, my experience and investigation have both taught me that trees having serrated leaves are very much more liable to mildew, and lose its crop, than glandular-leaved trees.

9th. I have never discovered in my own orchard any affection among glandular-leaved trees.

10th. Have never noticed this mildew until June; never before blossoming.

11th. Gravelly loam and sandy loam.

12th. Twelve years.

13th. I do not think the severity of the winter has injured the peach trees in this vicinity.

14th. January 28, 18° below zero, by librarian thermometer.

An average crop is indicated in this part of the State.

Very truly,

S. L. MORRIS.

REPORT NO. 2.

READ AT THE MEETING OF THE STATE POMOLOGICAL SOCIETY HELD AT SWEET'S HOTEL,
GRAND RAPIDS, TUESDAY EVENING, SEPTEMBER 16, 1873.

MR. PRESIDENT AND GENTLEMEN:—By request your committee made a partial report at the meeting of the society held at Kalamazoo on the 25th of June, giving a detailed account of their proceedings up to that date. Knowing as we did that it was impossible to make a reliable, final report without examining the orchards, we decided to visit the peach orchards along the eastern border of Lake Michigan, and by careful examination be able to judge for ourselves whether the disease known as the *Yellows* had found its way into the peach orchards of that locality, and if it had, then to what extent had it attacked the trees; how came it there; and how shall we get rid of it.

THE DEPARTURE.

For this purpose we left Kalamazoo on the morning of July 30th for St. Joseph, where we arrived early that evening and made known our wishes to Mr. A. H. Morrison, who introduced us to Mr. Whittlesey and Mr. Drury, who very kindly volunteered themselves and a team to take us to any and all places we desired to visit at St. Joseph and Benton Harbor. We accepted the kind, generous offer, and arranged with them to start early on Thursday morning.

AT ST. JOSEPH.

On Thursday morning, in the midst of a rain storm, the above named gentlemen called for us according to agreement. In company with them we started out upon our mission. Our first stopping place was at the residence of Mr.

Benjamin Williams, about one and a half miles south of St. Joseph. Six years ago this farm was a forest. Now, Mr. Williams has twenty acres planted with peach, apple and pear trees, grapes, blackberries, raspberries and strawberries. A few of his young peach trees showed signs of disease, otherwise all his trees and vines were very handsome, vigorous and healthy, the grape vines carrying full as much fruit as they ought to be permitted to ripen.

During our peregrinations among the orchards we saw much to excite our admiration; a great deal that was highly interesting to ourselves, and some things, and methods of cultivation that would bear criticism. Thinking that some of the information gained by your committee upon this trip, relating not only to peach culture and the Yellows, but to the cultivation of other fruits, would not only be interesting, but of some practical value to members of this association, we will, in making this report, take a little broader ground than that named in the resolution under which we act, and not confine ourselves wholly to the subject of peaches.

On Mr. Williams' ground we saw a large patch of strawberry plants that were set last spring on new ground. They were set in hills about two and a half feet apart, each way, and had made a very strong and healthy growth. His place showed that much intelligent labor and care had been bestowed upon it, yet, with all his care and labor he had not succeeded in keeping the Yellows from his peach orchard, a few trees showing signs of its presence.

Heavy showers, falling at short intervals during the day, prevented us from examining the orchards so fully and minutely as we would have done had the day been pleasant.

AT BENTON HARBOR.

From Mr. Williams' orchard we drove along the Lake Shore road two or three miles, then through cross-roads, and on to Benton Harbor, making occasional stops and noticing the apple, pear, and peach orchards and the vineyards on either hand. Here and there an orchard showed neglect; in some, the land seemed to be greatly overtaxed, for besides the rows of apple trees with peach trees alternating with the apple, there was a row of peach trees, pretty closely set, between the rows of apple trees, and the spaces filled with small fruits of some kind; thus, instead of giving the peach trees the whole benefit of the strength of the soil, they were permitted to avail themselves of but a small portion of it.

Mr. Whittlesey has a ten-acre lot in Benton Harbor in which he set apple and peach trees, in 1861. All these trees are healthy and in fine condition. The ground is kept in good tilth, clear from weeds, and nothing is permitted to grow among the apple and peach trees. The apple trees were heavily laden with fruit. The peach trees had been injured some by the severe cold of the past winter, but the branches were cut back in the spring, and at the time of our visit they had formed handsome heads and were growing vigorously; but, in common with the peach trees of St. Joseph and Benton Harbor, they were destitute of fruit.

Adjoining the orchard of Mr. Whittlesey is the home of Mr. H. F. White. His trees were in good condition; we did not find any Yellows among them. At this place we found a large plantation of blackberries. Among them were several rows of the "Snyder." This is a new variety; a very strong, upright, robust-growing plant; very hardy, and exceedingly prolific; the long racemes of fruit standing so high above the foliage as to attract the attention of the most casual observer.

In passing along among the peach orchards of St. Joseph and Benton Harbor

we noticed indications of the Yellows at several points. One orchard, not far from Heath's Corners, was noticed as being apparently neglected, and showing signs of the Yellows upon several trees.

At about 2 P. M. we took leave of our kind friends at St. Joseph, and took passage on a freight train for the Grand Junction, where we remained over night.

AT SOUTH HAVEN.

On Friday morning, August 1st, we went to South Haven, dined, then took a team, drove to Mr. A. S. Dyckman's house and pressed him into the service to act as pilot for the remainder of the day.

Our first call was at the orchard of Mr. Daniel P. Pierce. Here we found apple and pear trees in fine condition ; no signs of Yellows in his peach orchard, but we noticed the gum exuding from the trunk and branches of some of the trees. Upon examination we found that the larva of a small black beetle was the cause of it. We cut into one tree that had been sadly bored into by these little objects and found the small yellowish white worms, and the parent in the shape of a very small black beetle. We also saw indications of this borer in some of the peach trees at St. Joseph.

The larva of this little beetle is a hard-working borer ; it makes its way rapidly to the heart of the tree, and if not checked in its work will soon be productive of much injury to the peach trees.

Our next call was on Mr. John Williams. Here we had an opportunity of examining his "Fruit Dryer" in operation, drying berries. It seems to be an inexpensive and easily managed arrangement, worthy the attention of fruit growers. We examined several orchards in the vicinity of Mr. Williams' place, but did not find any indications of the Yellows.

We then drove to Mr. Bidwell's farm, situated on a high bank on the border of Lake Michigan ; a belt of hemlock and other trees being left as a protection to the orchard from the winds from the Lake. Mr. Bidwell being from home, we made but a short stop in his orchard. We noticed here a large number of very handsome pear trees in full bearing. His little orchard of fig trees was thrifty and showing some fruit. A few of his peach trees were winter-killed, others were in good condition, making strong and healthy growth.

A small peach orchard adjoining Mr. Bidwell on the south needed some attention,—many of the trees were winter killed. We did not discover any Yellows here.

In a small peach orchard adjoining Mr. Bidwell's on the north we found a tree of "Hale's Early" full of fruit not more than two-thirds grown, but of a very dark purple color, and nearly ripe. Upon close examination we found that the Yellows had taken full possession of this tree, and three or four others that stood near it. This orchard is protected on the west by trees, and a high, tight board fence.

We then proceeded to the orchard of Mr. A. S. Dyckman. Here we found an orchard of thirty acres, and about thirty-five hundred peach trees, besides apple and pear trees, and an extensive vineyard. Although this peach orchard had been thinned of more than half its fruit, the branches were bending under the weight of the crop. The ground is kept well tilled, and no extra objects, not even weeds, are permitted to grow on the land ; all the sustenance it contains is given to the trees, and the trees are generous in the return they make for the food, culture and care given them. A few trees that stood on an

exposed knoll, where the snow blew off from the roots, were winter-killed. These trees leaved out, blossomed, and set their fruit as full as any trees in the orchard, but soon after the fruit had set the trees began to fail, and soon died. Upon examination it was found that the trees were dead at the root, while alive at the top. A microscopic examination of the wood of the root and the trunk showed that the tissues of the root were burst and the sap was lying around loose, while the tissues of the trunk were whole and filled with hardened sap.

The theory the committee adopted with regard to these trees, and others noticed by them in other orchards, that had died under similar circumstances, was, that the wood of the trees above ground was well ripened and in good condition to withstand the severe cold, while the warmth of the earth had kept the sap in the roots in a liquid state until the sudden and intense cold caused it to burst the tissues, thus killing the roots. As the spring opened the sap stored up in the upper part of the trees began to circulate, doing what it could to produce a vigorous growth by opening the leaf and blossom buds and showing fruit, but the supply of nutriment being cut off by the bursting of the woody tissues of the root, death to the whole tree was the ultimate consequence.

On Saturday morning, August 2d, Mr. I. S. Linderman took us to examine various peach orchards, among them was one of his own that he had recently purchased and had not examined sufficiently to know the varieties of trees that it contained and their condition. Upon a slight examination of this orchard we found one tree that was showing strong indications of an attack of the Yellows. Mr. Linderman would give this orchard an immediate and thorough examination and destroy every tree that showed any appearance of having been attacked by the Yellows. We then drove to Mr. Griffin's orchard that extended quite to the lake. A large number of trees in this orchard that were exposed to the wind from the lake were winter killed. The part of his orchard that was protected on the south by a dense forest was uninjured. The grapes in Mr. Griffin's vineyard were in fine condition.

Adjoining this orchard on the north is the orchard of Mr. Penniman. It is protected on the west and north by a belt of hemlock trees that have been preserved between it and the lake. This belt of timber seems to have preserved this orchard from the sad effects of the cold and the winds that had so greatly damaged Mr. Griffin's orchard. Mr. Penniman's peach trees were growing thriftily, and all looked healthy with the exception of two trees. One of these was a "Hale's Early," that had ripened its fruit prematurely. The fruit had been gathered with the exception of a few specimens that still remained on the tree. These specimens were not more than half grown, were nearly covered with dark purple spots, that affected not only the skin, but the flesh also. The taste was insipid and quite unlike a healthy specimen of "Hale's Early." This appearance of the fruit was caused by the Yellows. One other tree, not in fruit, showed unmistakable signs of disease. Mr. Penniman assured us that within twelve hours from that time these two trees would be taken up and destroyed. If all who find indications of the Yellows in their orchards would act with the same decision, promptitude and energy, a step in the right direction would be taken and a great point gained.

From this orchard Mr. Linderman took us to his own home, where we saw a beautiful, thrifty peach orchard, with but little or no fruit. It has been the custom of Mr. Linderman, in common with many others, to hill up his trees

with earth in the spring to protect them from injury by the peach tree borer, (*aegeria exitiosa*), and towards autumn to level the mound to permit the bark at the surface of the earth to harden for the better protection of the trees during winter, then, just before winter sets in to cover the roots and the lower part of the trunk. Last fall he leveled the mounds and uncovered a portion of the roots as usual, but before he had time to cover them the cold weather came on, froze the earth, and upon exposed situations killed several trees. The trees not killed are in a flourishing condition.

AT FRUITPORT, SPRING LAKE, AND GRAND HAVEN.

On Saturday afternoon we took cars for Fruitport. From there we went by steamer down Spring Lake to Grand Haven.

At Grand Haven we called at the farm of Mr. T. E. Gidley, well-known for many years as a successful farmer and fruit grower in Jackson county. Not finding Mr. Gidley at home we took a stroll through a part of his orchard and vineyard, particularly that part lying between his house and the lake; here he has an orchard of handsome, healthy, vigorous peach trees, not in bearing this year, but promise well for the next season.

We went through an old apple and peach orchard that was planted many years since, we were informed, by Mr. Ferry, father of Col. and Senator Ferry, but now owned by Mr. Mansfield. The peach trees are very large, and probably very large crops of peaches have been taken from them in former years, but they seem to be dying of old age. They have evidently seen their best days. We could not detect any evidence of the Yellows ever having been in this old orchard.

We made a short call at the home of Mr. Clubb. He was absent on business connected with the State Pomological Society. He is making a beginning at a peach and apple orchard and a vineyard.

On the afternoon of August 5th we proceeded to the pleasant little village of Spring Lake. Here we met Mr. Savidge, of the firm of Cutler & Savidge, who introduced us to his partner, Mr. Cutler, and other gentlemen. He then furnished us with means to cross Spring Lake to the farm of Mr. Hezekiah G. Smith, a colored man and namesake of a member of our committee. We were informed that Mr. Smith was the first successful peach grower on the borders of this Lake. Some of his peach trees are very old, and show signs of decay. At this place some of the large limbs of these old trees split down the previous summer, and they were permitted to remain still attached to the trees but reclining upon the ground; these limbs were loaded with good-sized, healthy fruit, while the upright portions of the trees had no fruit. His younger peach trees were in good growing condition, but not showing much fruit. His apple orchard was in good condition. After spending an hour or two with Mr. Smith we returned to the village.

After tea Mr. Savidge took us in his carriage to the farm of Mr. R. D. Waters. This is a new place, pleasantly situated on the south bank of Spring Lake, and about midway between Spring Lake village and Fruitport. Mr. Waters has a young peach orchard situated on high, rolling ground; it seems to be healthy and doing well.

On our return towards the village, we stopped at the home of Mr. Thomas Petty. To look upon this beautiful orchard and vineyard was a rich treat. His sixteen hundred peach trees are of uniform shape and size, and uniformly healthy and vigorous, but not in bearing. From the vicinity of his house the land rises gradually to the east line of his premises. Standing near the dwell-

ing and looking eastward over the long lines of grape-covered trellises, the ground so well tilled and so clean, the vines all tied up and filled with fruit, the gentle rise of the ground giving us a view of the many acres at once was one of the most beautiful sights we saw during our very pleasant trip.

From Mr. Petty's place we returned to the hotel, and by invitation joined a very pleasant little party for the evening.

The evening of August 6th we spent, in company with Mr. Savidge, in visiting and examining the orchards in the vicinity of Spring Lake village. On our way we passed an old peach orchard that was planted by Deacon Lovell. The trees were purchased in 185- of Mr. Lay, of Ypsilanti. They have borne large crops for many years in succession, but they now show signs of decay from old age.

After dining with Mr. Savidge we took a small steamboat and crossed the lake to the farm of Mr. Lyman Hall. We met Mr. Hall on the steamer; and at his dock, as the steamer stopped, we met Mr. Waters waiting with his boat to take us to as many places on the borders of the lake as we desired to visit. From Mr. Hall's we went to the farm of Mr. Theoplore Curtis. At these two places we saw some very handsome peach orchards, and good farming.

We then crossed the lake and examined the orchards of Mr. J. B. Soule, and Mr. A. L. Soule, and the young peach and pear orchards of Messrs. Charles and Edward Curtis. All these orchards are in excellent condition, the trees are in good shape, and the ground is well tilled. We examined orchards on both sides of Spring Lake very thoroughly and carefully, but failed to find any indications of the Yellows.

From the Curtis farm we found our way by walking and boating to the Pomona House at Fruitport; Mr. Waters rowing the boat from place to place, while Mr. Hall piloted us from orchard to orchard.

AT MUSKEGON.

After tea at the Pomona House we took cars for Muskegon. Upon our arrival there we called on Mr. Whitney, who showed us through his greenhouse and garden.

On the morning of August 7th we crossed Lake Muskegon and called on Mr. B. Moulton, who has a large and very fine peach orchard and vineyard, situated on a point of land between Muskegon and Bear Lakes, and about four miles inland from Lake Michigan. His peach trees are healthy and vigorous. He has no peaches this year, but a fine show of grapes and blackberries.

AT PENTWATER.

In the evening we went to Pentwater. Here our trip northward terminated. We met Mr. Alexander Pettinger at Shelby, Oceana county. At this point he has a farm of one hundred and sixty acres, on which he has an apple, pear and peach orchard. On peach trees that are seventeen years old there is considerable fruit, while on his younger trees there is none. The Yellows is not known at this point.

CONCLUDING REMARKS.

In view of all the research, examination of trees, modes of cultivation, and the general and special observation made by your committee, they feel inclined merely to present the facts that have come under their observation as stated in the report, and there leave the subject to be discussed by the Society. They think that the large mass of facts and information elicited from peach growers,

added to their own observations and placed before you in this report, will serve to direct your attention to a careful study of the peach tree, and diseases to which it seems peculiarly liable.

As above stated, your committee found the Yellows had attacked peach trees in some of the orchards at St. Joseph, Benton Harbor and South Haven, but at no point north of South Haven.

Their observations lead them to the conclusion that the primary cause of the Yellows is a weakening of the trees by overtaxing the soil, thus depriving them of a large portion of the sustenance they should receive from the earth; then allowing them to ripen large crops of fruit for several years in succession, thus reducing their strength and ability to resist disease.

With regard to the Fungus theory your committee do not think it the original cause of the disease, but where it occurs it is the result of the weakening process that has been going on, placing the trees in a condition for a fungus, as it alights upon them, to strike root and grow. As a general thing fungi do not fasten to and grow upon perfectly healthy objects, but upon debilitated, enfeebled, diseased, or dead objects. Mr. M. C. Cook, of England, probably the highest authority upon the subject of fungi, in his book entitled "An Introduction to the Study of Microscopic Fungi," says: "It is possible that the granular fluid contents of the spores may be absorbed by the plant, and as a result of this absorption, become inoculated with the virus, which at length breaks out in fungoid growths. Much has been done to elucidate this mystery of inoculation, but much also remains a mystery still. There is no doubt that the inoculation takes place at an early age, probably in the seeds of many plants; in others it may be conveyed with the moisture to the roots; but the spores themselves have certainly not yet been traced traversing the tissues of growing plants."

Your committee have no doubt but that the disease called the Yellows, whatever it may be, may be reproduced by planting pits taken from the fruit of diseased trees. The disease will, we think, sooner or later be developed in trees thus produced, no matter on what soil they are grown, or how well they are cared for.

It has been noticed, and often stated, that in one season one tree only in an orchard will show the Yellows; the next season another tree in the same orchard, standing at quite a distance from the first one affected, will be destroyed by the same disease, while trees standing near the first named show no signs of disease. This is used as an argument against the theory that the disease is contagious, but it may be an argument in favor of the doctrine that the diseased trees were infected by being grown from diseased pits or diseased buds, while the other trees were not so produced.

Your committee would recommend to orchardists to destroy every peach tree on their premises that shows signs of being infected with the Yellows, and not to raise stocks from seeds of diseased trees, or to bud their stocks with buds taken from diseased trees, or to purchase trees from a district where the disease is known to prevail.

All of which is respectfully submitted.

J. C. HOLMES,
H. G. WELLS,
S. O. KNAPP,
Committee.

THE YELLOWS.

BY A. J. DOWNING, IN 1845, AS PUBLISHED IN DOWNING'S FRUITS AND FRUIT TREES OF AMERICA.

NEWBURG, NEW YORK, April 24, 1873.

J. P. THOMPSON,—You are at liberty to publish any thing you wish in relation to the peach, in Downing's new edition, but you will see by a foot-note that I do not agree with my brother and many others, that a *thrifty, healthy* tree will not take the Yellows, because I have known of many of the most vigorous and healthy trees to take it and die; and not only once, but at various times.

I do not mean to say, however, that they will take it as readily as those that are not vigorous or weakened by overbearing and poor cultivation.

The only remedy that I know of, or rather a preventive, is to go over the orchard in August, or when they are in bearing, and remove those that show the least sign of the disease, or, mark them to be taken out at leisure, or before winter sets in.

My experience here is—I do not know how it is elsewhere—that the disease comes periodically of about 15 to 20 years, and continues three or four years, or longer, if means are not used to stop it.

It is a singular disease, and as yet, has not been satisfactorily accounted for. They do not have it in Europe, neither south of the Potomac in this country, that I am aware of, and yet trees at the south overbear and are neglected as well as at the north and west. I recollect many years since a friend of mine, who believed the disease was in the stock *only*, imported 100 trees from France, but in two years one-third had the Yellows, and the remainder died with it the third or fourth year.

With care and attention much can be done to eradicate the disease.

Wishing you success in your undertaking, I remain

Very respectfully,

CHAS. DOWNING.

THE YELLOWS.

This most serious malady seems to belong exclusively to this country, and to attack only the peach-tree. Although it has been the greatest enemy of the peach-planter for the last thirty years,—rendering the life of the tree uncertain, and frequently spreading over and destroying the orchards of whole districts,—still little is known of its nature, and nothing with certainty of its cause. Many slight observers have confounded it with the effects of the peach-borer, but all persons who have carefully examined it know that the two are totally distinct. Trees may frequently be attacked by both the Yellows and the borer, but hundreds die of the Yellows when the most minute inspection of the roots and branches can discover no insect or visible cause. Still we believe proper cultivation will entirely rid our gardens and orchards of this malady; and this belief is in part borne out by experiments under our own inspection. In order to combat it successfully, it is necessary that the symptoms should be clearly understood.

SYMPTOMS.

The Yellows appear to be a constitutional disease, no external cause having yet been assigned for it. Its infallible symptoms are the following:—

1. The production upon the branches of very *slender, wiry shoots*, a few inches long, and bearing starved diminutive leaves. These shoots are not pro-

truded from the extremities, but from latent buds on the main portions of the stem and larger branches. The leaves are very narrow and small, quite distinct from those of the natural size, and are either pale yellow or destitute of color.

2. The premature ripening of the fruit. This takes place from two to four weeks earlier than the proper season. The first season of the disease it grows nearly to its natural size; the following season it is not more than half or a fourth of that size; but it is always marked externally (whatever may be the natural color) with specks and large spots of purplish red. Internally the flesh is more deeply colored, especially around the stone, than in the natural state.

Either of the foregoing symptoms (and sometimes the second appears a season in advance of the first) are undeniable signs of the Yellows, and they are not produced by the attacks of the worm, or other malady. We may add to them the following additional remarks:—

It is established beyond question, that the Yellows can always be propagated by budding or grafting from a diseased tree; that the stock, whether peach or almond, also takes the disease, and finally perishes; and that the seeds of the diseased trees produce young trees in which the Yellows sooner or later breaks out. To this we may add that the peach, budded on the plum or apricot, is also known to die with the Yellows.

Very frequently only a single branch, or one side of a tree, will be affected the first season. But the next year it invariably spreads through its whole system. Frequently trees badly affected will die the next year. But usually it will last, growing more and more feeble every year, for several seasons. The roots, on digging up the trees, do not appear in the least diseased.

The soil does not appear materially to increase or lessen the liability to the Yellows, though it first originated, and is most destructive, in light, warm, sandy soils.

Lastly, it the nearly universal opinion of all orchardists that the Yellows is a *contagious* disease, spreading gradually, but certainly, from tree to tree through whole orchards. It was conjectured by the late William Prince that this takes place when the trees are in blossom, the contagion being carried from tree to tree in the pollen by bees and the wind. This view is a questionable one, and it is rendered more doubtful by the fact that experiments have been made by dusting the pollen of diseased trees upon the blossoms of healthy ones without communicating the Yellows.

We consider the contagious nature of this malady an unsettled point. Theoretically, we are disinclined to believe it, as we know nothing analogous to it in the vegetable kingdom. But on the other hand it would appear to be practically true, and for all practical purposes we would base our advice upon the supposition that the disease is contagious. For it is only in those parts of the Atlantic States where every vestige of a tree showing the Yellows is immediately destroyed, that we have seen a return of the normal health and longevity of the tree.*

*The following extract from some remarks on the Yellows by that careful observer, Noyes Darling, Esq., of New Haven, Ct., we recommend as worthy the attention of those who think the disease contagious. They do not seem to indicate that the disease spreads from a given point of contagion, but breaks out in spots. It is clear to our mind that in this, and hundreds of other similar cases, the disease was *inherent* in the trees, they being the seedlings of diseased parents.

"When the disease commences in a garden or orchard containing a considerable number of trees, it does not attack all at once. It breaks out in *patches* which are progressively enlarged, till eventually all the trees become victims to the malady. Thus, in an orchard of two and a half acres, all the trees were healthy in 1827. The next year two trees on the *west side* of the orchard, within a rod of each other, took the Yellows. In 1829, six trees on the *east side* of the orchard were attacked; five of them standing within a circle of four rods diameter. A similar fact is now apparent in my neighborhood. A fine lot of 200 young trees, last year in perfect health, now show disease in two spots near the opposite ends of the lot, having exactly six diseased trees in each patch contiguous to each other; while all the other trees are free from any marks of disease."—*Cultivator*.

CAUSE OF THE YELLOWS.

No writer has yet ventured to assign a theory, supported by any facts, which would explain the cause of this malady. We therefore advance our opinion with some diffidence, but yet not without much confidence in its truth.

We believe the malady called the Yellows to be a *constitutional taint* existing in many American varieties of the peach, and produced, in the first place, by bad cultivation and the consequent exhaustion arising from successive over-crops. Afterwards it has been established and perpetuated by sowing the seeds of the enfeebled tree, either to obtain varieties or for stocks.

Let us look for a moment into the history of the peach culture in the United States. For almost a hundred years after this tree was introduced into this country it was largely cultivated, especially in Virginia, Maryland, and New Jersey, as we have already stated, in perfect freedom from such disease, and with the least possible care. The great natural fertility of the soil was unexhausted, and the land occupied by orchards was seldom or never cropped. Most of the soil of these States, however, though at first naturally rich, was light and sandy, and in course of time became comparatively exhausted. The peach-tree, always productive to an excess in this climate, in the impoverished soil was no longer able to recruit its energies by annual growth, and gradually became more and more enfeebled and short-lived. About 1800, or a few years before, attention was attracted in the neighborhood of Philadelphia to the sudden decay and death of the orchards without apparent cause. From Philadelphia and Delaware the disease gradually extended to New Jersey, where, in 1814, it was so prevalent as to destroy a considerable part of all the orchards. About three or four years later it appeared on the banks of the Hudson (or from 1812 to 1815), gradually and slowly extending northward and westward to the remainder of the State. Its progress to Connecticut was taking place at the same time, a few trees here and there showing the disease, until it became well known (though not yet generally prevalent) throughout most of the warmer parts of New England.

It should be here remarked, that though the disease had been considerably noticed in Maryland and the Middle States previously, yet it was by no means general until about the close of the war of 1812. At this time wheat and other grain crops bore very high prices, and the failing fertility of the peach orchard soils of those States was suddenly still more lowered by a heavy system of cropping between the trees without returning anything to the soil. Still the peach was planted, produced a few heavy crops, and declined from sheer feebleness and want of sustenance. As it was the custom with many orchardists to raise their own seedling trees, and as almost all nurserymen gathered the stones *indiscriminately* for stocks, it is evident that the constitutional debility of the parent trees would naturally be inherited to a greater or less degree by the seedlings. Still the system of allowing the tree to exhaust itself by heavy and repeated crops in a light soil was adhered to, and generation after generation of seedlings, each more enfeebled than the former, at last produced a completely sickly and feeble stock of peach-trees in those districts.

The great abundance of this fruit caused it to find its way more or less into all the markets on the sea-coast. The stones of the enfeebled Southern trees were thus carried north, and, being esteemed by many better than those of home growth, were everywhere more or less planted. They brought with them the enfeebled and tainted constitution derived from the parent stock. They reproduced almost always the same disease in the new soil; and thus, little

by little, the Yellows spread from its original neighborhood, below Philadelphia, to the whole northern and eastern sections of the Union. At this moment, 1845, it is slowly but gradually moving West; though the rich and deep soils of the western alluvial bottoms will, perhaps, for a considerable time, even without care, overpower the original taint of the trees and stones received from the East.

Let us look a little more closely into the nature of this enfeebled state of the peach-tree which we call the Yellows.

Every good gardener well knows that if he desires to raise a healthy and vigorous seedling plant, he must select the seed from a parent plant that is itself decidedly healthy. Lindley justly and concisely remarks: "All seeds will not equally produce vigorous seedlings; but the healthiness of the new plant will correspond with that of the seed from which it sprang. For this reason it is not sufficient to sow a seed to obtain a given plant; but in all cases, when any importance is attached to the result, the plumpest and healthiest seeds should be selected, if the greatest vigor is required in the seedling, and feeble or less perfectly formed seeds, when it is desirable to check natural luxuriance."*

Again, Dr. Van Mons, whose experience in raising seedling fruit trees was more extensive than that of any other man, declares it as his opinion that the more frequently a tree is reproduced *continuously* from seed, the more feeble and short-lived is the seedling produced.

Still more, we all know that certain peculiarities of constitution or habit can be propagated by grafting, by slips, and even by seeds. Thus the *variegated* foliage, which is a disease of some sort, is propagated forever by budding, and the disposition to mildew of some kinds of peaches is continued almost always in the seedlings. That the peach-tree is peculiarly constant in any constitutional variation, the *Nectarine* is a well-known proof. That fruit tree is only an accidental variety of the peach, and yet it is continually reproduced with a smooth skin from seed.

Is it not evident, from these premises, that *the constant sowing of the seeds of an enfeebled stock of peaches would naturally produce a sickly and diseased race of trees?* The seedlings will at first often appear healthy, when the parent had been only partially diseased, but the malady will sooner or later show itself, and especially when the tree is allowed to produce an over crop.

That poor soil and over-bearing will produce great debility in any fruit tree, is too evident to need much illustration. Even the apple, that hardiest orchard tree, requires a whole year to recover from the exhaustion of its powers caused by a full crop. The great natural luxuriance of the peach enables it to lay in new fruit-buds while the branches are still loaded with fruit, and thus, except in strong soil, if left to itself, it is soon enfeebled.

There are some facts in our every day observation which may be adduced in proof of this theory. In the first place, the varieties of this tree always most subject to this disease are the *yellow peaches*; and they, it is well known, also produce the heaviest crops. More than nine-tenths of the victims, when the disease first appeared, were the yellow-fleshed peaches. On the other hand, the white-fleshed kinds (those white and red externally) are much more rarely attacked; in some parts of the country never. They are generally less vigorous, and bear more moderate crops. And it is well worth remarking that

* Theory of Horticulture.

certain fine old sorts, the ends of the branches of which have a peculiar *mildewed* appearance (such as the old Red Rareripe, the Early Anne, etc.), which seems to check the growth without impairing the health, are rarely, if ever, attacked by the Yellows. Slow growing and moderately productive sorts, like the Nutmeg peaches, are almost entirely exempt. We know an orchard in the adjoining county where every tree has gradually died with the Yellows, except one tree which stood in the center. It is the Red Nutmeg, and is still in full vigor. It is certainly true that these sorts often decay and suddenly die, but we believe chiefly from the neglect which allows them to fall a prey to the peach-borer. Indeed the frequency with which the borer has been confounded with the Yellows by ignorant observers, renders it much more difficult to arrive at any correct conclusions respecting the *contagious* nature of the latter disease.*

It may be said, in objection to these views, that a disease which is only an enfeeblement of the constitution of a tree, would not be sufficient to alter so much its whole nature and duration as the Yellows has done that of the peach. The answer to this is, that the debility produced in a single generation of trees probably would not have led to such effects, nor to any settled form of constitutional disease. But it must be borne in mind that the same bad management is to a great extent going on to this day, the whole country over. Every year, in the month of August, the season of early peaches, thousands of bushels of fruit, showing the infallible symptoms of the Yellows,—a spotted skin, etc.,—are exposed and sold in the markets. Every year more or less of the stones of these peaches are planted, to produce, in their turn, a generation of diseased trees, and every successive generation is even more feeble and sickly than the last! Even in the North, so feeble has the stock become in many places, that an excessive crop of fine fruit is but too frequently followed by the Yellows. In this total absence of proper care in the selection both of the seed and the trees, followed by equal negligence of good cultivation, is it surprising that the peach has become a tree comparatively difficult to preserve, and proverbially short-lived?

Abroad, it is well known that the peach is always subjected to a regular system of pruning, and is never allowed to produce an over crop. It is not a little singular, both that the Yellows should never have originated there, and that, notwithstanding the great number of American varieties of this fruit that have been repeatedly sent to England and are now growing there, the disease has never extended itself, or been communicated to other trees, or even been recognized by English or French horticulturists. We must confess these facts appear to us strong proofs in favor of our opinion as to the nature and origin of the malady.

REMEDY FOR THE YELLOWS.

It may seem to many persons a difficult task to rid ourselves of so widespread a malady as this, yet we are confident that a little perseverance and care will certainly accomplish it. In the present uncertainty with regard to its contagious nature, it is much the wisest to reject "the benefit of the doubt," and act upon the principle that it is so. We know at the present moment several gardens where the trees are maintained in good health by immediately rooting out and destroying every tree as soon as it shows marked symptoms of the malady.

* All knowledge relating to the Yellows appears to us as much in obscurity as when this was written. In our experience no one variety seems more liable to be attacked than another, the most vigorous trees being as often affected as those of moderate growth.—C. D.

1. We would therefore commence by exterminating, root and branch, every tree which has the Yellows. And another tree should not be planted in the same spot without a lapse of several years, or a thorough removal of the soil.

2. The utmost care should be taken to select seeds for planting from perfectly healthy trees. Nurserymen, to secure this, should gather them from the latest ripening varieties, or procure them from districts of the country where the disease is not known.

3. So far we have aimed only at procuring a healthy stock of trees. The most important matter remains to be stated—*how to preserve them in a healthy state.*

The answer to this is emphatically as follows: *pursue steadily, from the first bearing year, the shortening-in system of pruning* already explained. This will at once secure your trees against the possibility of over-bearing and its consequences, and maintain them in vigor and productiveness for a long time.* It will, in short, effectually prevent the Yellows where it does not already exist in the tree. To whoever will follow these precautions, pursue this mode of cultivation, and adopt at the same time the remedy for the borer already suggested, we will confidently insure healthy, vigorous, long-lived trees, and the finest fruit. Will any reasonable man say that so fine a fruit as the peach does not fully merit them?

Whether the system of shortening-in and careful culture will prevent the breaking out of the Yellows, when constitutionally *latent* in the tree, we will not yet undertake to say. In slight cases of the disease we believe that it may. Of one thing, however, we are certain: it has hitherto failed entirely to reclaim trees in which the malady had once broken out. Neither do we know of any well-attested case of its cure, after this stage, by any means whatever. Such cases have indeed been reported to us, and published in the journals, but, when investigated, they have proved to be trees suffering by the effects of the *borer* only.

A planter of peach trees must, even with care, expect to see a few cases of Yellows occasionally appear. The malady is too widely extended to be immediately vanquished. Occasionally trees having the constitutional taint will show themselves where least suspected; but when the peach is once properly cultivated these will every day become more rare, until the original health and longevity of this fruit tree is again established.

* The following remarks, directly in point, are from London's last work: "The effect of shortening the shoots of the peach is not merely to throw more sap into the fruit, but to add vigor to the tree generally by increasing the power of the roots relatively to the branches. The peach being a short-lived tree, it has been justly remarked by Mr. Thompson, were it allowed to expend all its accumulated sap every year, it would soon exhaust itself and die of old age."—*Suburban Horticulturist*.

CHERRIES.

AN ADDRESS DELIVERED BEFORE THE MICHIGAN STATE POMOLOGICAL SOCIETY, AT THE FOURTH ANNUAL EXHIBITION OF STRAWBERRIES AND CHERRIES, HELD AT KALAMAZOO, JUNE 25, 1873.

BY HENRY S. CLUBB.

Mr. President and Fellow Members of the Pomological Society:

At the first exhibition of strawberries and cherries held by the State Pomological Society, June 16th, 1870, by invitation I made some remarks on "Strawberries and Cherries," which were honored with a permanent record in the proceedings of this Society, more, I presume, for the sake of completing a history of the early struggles and feeble efforts of the Society than on account of any intrinsic merits. My audience on that occasion was small in numbers, but as results have since proved, great in energy, in zeal, perseverance and in all those high qualities of noble manhood which insure success.

Although cherries were included in the subject of that early essay, they were given a secondary place, and time failed me in doing justice to that pendent, luscious and beautiful little globe, so rich in color, delicate in flavor, and so fraught with health-giving blessings, which we denominate "the cherry." For this reason, I presume, I have been assigned cherries as a subject for the present meeting by your committee.

I cannot say my experience is as great in the cultivation of cherries as in that of strawberries; one reason is cherries need but little cultivation. I claimed for the strawberry that it is emphatically "the poor man's fruit," because a good crop can be gathered within ten months of planting. The cherry, although longer in coming into bearing, requires so little outlay for labor and is so sure a crop, in this climate, that no fruit-grower should think of planting a fruit farm without planting a good proportion of cherries, because while peaches, pears, plums, and even apples sometimes fail, the common Morrello cherry, and probably some other varieties, when once in bearing, becomes as reliable as the commonest farm crop.

VALUE OF THE CHERRY.

The season of the year when the cherry is ready for market greatly enhances its value as a market fruit, and indeed as a family fruit. It is the first tree of fruit that ripens in this climate, and for cooking it has positively no successful rival among the small fresh fruits of this season of the year.

But the value of the cherry as a fruit for domestic use, as an article of food,

and consequently for market purposes, although great, is perhaps only exceeded by its great value medicinally.

In our climate, notwithstanding its salubrious character, persons are sometimes affected with throat difficulties. Perhaps these difficulties are chiefly inherited from our more eastern progenitors, but from whatever cause, the difficulties exist. Our clergymen and others engaged in public life are especially liable to diseases of the throat and consumption, although these diseases are not so common as at the East. The cherry is admitted to be one of the best antidotes and perhaps the very best furnished by nature's great laboratory. The "Cherry Pectoral" of a famous eastern physician has an immense demand, and it is owing to the efficiency of this antidote, which we may have so abundantly if we only take the necessary pains to raise cherries. If cherries were grown so plentifully as to become the daily food of the people, there would be little occasion for expensive "Cherry Pectoral;" the throat diseases would probably be prevented and the hereditary tendency in a great measure overcome.

The demand for cherries in the season is always greater than the supply, and even when dried, the cherry commands several hundred per cent more per pound than any other dried fruit, not excepting the best imported fruits. This shows that there is an intrinsic value attached to the cherry which no other fruit is known to possess. Both its agreeable alimentary and its valuable medicinal properties, we presume, produce this demand and places this high price on the cherry of commerce.

A recent invention for stoning cherries removes the only objection to this fruit as an article of great commercial value.

VARIETIES.

Of the twenty varieties of cherries mentioned in the appendix to the report of the Michigan State Pomological Society of 1871, only four or five have been proved profitable for market purposes in Western Michigan, so far as my observation and experience extend. While I would not recommend the extensive planting of varieties that have not been proved profitable, it is not amiss to have a few of the choice kinds for experiment. It is, however, with cherries as with strawberries and some other fruits, the strong acid varieties are the most prolific, the surest bearers, and for market and domestic purposes, the most profitable.

The choice, sweet cherries, although very desirable as table fruit, are not, in my experience, a very sure crop, and being subject to the depredations of the birds are seldom profitable, while the acid varieties are regularly good bearers, and, being almost free from the attacks of the birds and boys, generally remain on the tree until gathered. When thoroughly ripe they are of very rich flavor.

The Early Purple Guigne appears to have become the favorite variety in the southern portion of Michigan's fruit region, and its early and regular bearing, and its good flavor, renders it an excellent and profitable variety. Of the sweet cherries I presume it is the best that can be cultivated profitably in this region of the State, so far as ascertained.

The Early White Heart is a small sweet cherry, valuable for its earliness, but not desirable for extensive planting on account of its smallness.

Kirtland's Morrello is a short stocked variety, but I have failed to discover any superiority in it over the common Morrello. In fact I do not find it as sure a bearer. One objection to it is the smallness of its leaves, a serious defect in a climate subject to early, scorching sun. The fruit forms before the leaves

protect it, and the sun scorches the fruit, stunting its growth and causing a loss of a large portion of the crop.

One advantage of the Morrello cherry over all others, I think, is its adaptability to a northern aspect. It will flourish in almost perpetual shade and can be planted on the north side of a hill, wall, house or barn with decided advantage.

Mr. R. F. Elliott, of Cleveland, in the Report of the Department of Agriculture for 1867, describes several varieties of cherries not mentioned in the list of our Society just referred to. Of these the Kirtland just mentioned is one, and the Arch Duke another. The latter he describes as the best of the two Duke cherries. I presume the Late Duke mentioned in the Society's list may be the same variety, but Mr. Elliott claims that as incorrect, as it bears early in July, and cannot be called a late variety. The Arch Duke is described as large, round, heart shaped; compressed; dark, shining red; stem long and slender; flesh light red, slightly adhering to the pit; tender; sub-acid, rich and very good; tree vigorous, healthy; upright grower with long, broad, oval dark rich green foliage, slightly serrated, and the petioles a little bronzed. In sections where the more tender class of sweet cherries fails to succeed, this variety supplies a want and offers superior claims to cultivation. The true variety is somewhat rare, as the common Late Duke is often sold for it. From this description I think the Arch Duke would be a very desirable variety for this region of country. Its dense foliage would aid very much in securing the perfection of the fruit in our usually dry June season. If any present have this variety, I would like to hear a report on it.

The Ohio Beauty is another variety spoken of by Mr. Elliott, not mentioned in the Society's list. It is described as large, round, obtuse, heart-shaped; sometimes nearly round; suture slight; color yellow, light ground, mostly overspread and somewhat marbled, with dark rich and pale red spots; stem rather long and slender, and set in a deep open basin; flesh yellowish white, tender, juicy, delicate, with a rich, fine, sprightly flavor; pit small, oval; season last of June. Tree healthy, hardy, vigorous, rather a short-jointed grower, forming a round open headed tree; comes very early into bearing, and produces abundantly. Originated by Mr. V. P. Kirtland, of Ohio, in 1843. Mr. Elliott states that as far as he could learn, it has proved superior to the claim made for it by its originator. In no place that he could learn of has it ever shown any sign of disease, and it is reported as being grown successfully where the Black Tartarian and Elton have failed. I should judge from description that the Ohio Beauty would be a valuable acquisition to the varieties of the Michigan Lake Shore region, and recommend its trial. It is so large that it would, as a light-colored cherry, be greatly preferred to the White Heart, and its leaf, although not so large as desirable, is perhaps sufficiently large for all necessary protection.

Since preparing this essay I have had an opportunity of consulting Downing's "Fruits and Fruit Trees of America," and find my views confirmed in several particulars.

Mr. Downing insists on the position that the sour cherry is the surest crop:

"The hardiest cherries are the Kentish (or Early Richmond), the Dukes and the Morellos. These succeed well at the farthest limits, both North and South, in which the cherry can be raised, and when all other varieties fail, they may be depended on for regular crops."

THE CHERRY FOR CANNING.

Mr. Downing says :

"When canned they retain their character and are very delicious. The Dukes or Morellos are best for the purpose."

SOIL AND CLIMATE.

The light sandy soil of our Lake Shore region appears to be peculiarly adapted to the cherry tree, and the cool climate of the Lake Shore is peculiarly a cherry atmosphere. I should prefer shade and protection from too much sun as a general thing for producing perfect cherries, as the slower in arriving at maturity, the larger and better is the fruit.

The planting, pruning and cultivation of the cherry differ but little from those of the peach, and no special directions are needed to a society composed of peach-growers. The cherry is so much at home in Michigan that nothing but ordinary care and culture are necessary, and no tree perhaps suffers so little from neglect as the cherry. It will grow on the roadside, on the lawn surrounded by grass, or anywhere where an ordinary maple tree will grow, and thrive as well.

THE CHERRY FOR SHADE.

For ornamental purposes and for shade, the cherry is superior to almost any other fruit-bearing tree. Its beautiful and graceful form; its early sheet of white blossoms covering it as with a mantle of snow; its dense green foliage which soon follows the fall of the blossoms, and then its beautiful pendent fruit in red or jet clusters, nestled in delightful contrast with the emerald foliage, what can be more charming to the eye or more provocative of appetite? Had the forbidden fruit been the cherry, I think Eve herself should be forgiven for her transgression. What boy or girl can resist the temptation to take the cherry as it hangs in all its beauty and glory? The question of ownership is forgotten in the presence of a cherry tree laden with its rich and luscious ripe fruit. This very temptation is used as an argument against planting the cherry as a shade tree along our highways. Beauty so transcendent, as in the human form, should be its own protector. I would like to see cherry trees so common that there would be enough for boys and girls, birds and insects, and yet leave ample for profitable marketing.

It may be asking too much of fruit-growers to plant for the good of the public, but as shade trees of maple and other forest trees are generally quite as costly as cherry trees, and no more easily grown, there seems no serious objection to planting the cherry for shade along our streets and highways, securing for them all the protection that law and police regulations can secure. The sour varieties, although almost as beautiful, would be less liable to depredation than the sweet, and could be planted, I think, without fear of serious injury by boys. They might be alternated with maples with very pretty effect.

Mr. Downing's views on this subject are expressed as follows :

"The larger growing sorts of black cherry are the finest of all fruit trees for shade, and are, therefore, generally chosen by farmers, who are always desirous of combining the useful and the ornamental. Indeed, the cherry, from its symmetrical form, its rapid growth, its fine shade, and beautiful blossoms, is exceedingly well suited for a road-side tree in agricultural districts. We wish we could induce the planting of avenues of this and other fine-growing fruit trees in our country neighborhoods, as is the beautiful custom in Germany,

affording ornament and a grateful shade and refreshment to the traveller at the same moment. Mr. Loudon, in his *Arboretum*, gives the following account of the cherry avenues in Germany, which we gladly lay before our readers:—

“On the Continent, and more especially in Germany and Switzerland, the cherry is much used as a road-side tree; particularly in the northern parts of Germany, where the apple and pear will not thrive. In some countries the road passes for many miles together through an avenue of cherry trees. In Moravia, the road from Brunn to Olmutz passes through such an avenue, extending upwards of sixty miles in length; and in the autumn of 1828, we traveled for several days through almost one continuous avenue of cherry trees from Strasburg by a circuitous route to Munich. These avenues, in Germany, are planted by the desire of the respective governments, not only for shading the traveller, but in order that the poor pedestrian may obtain refreshment on his journey. All persons are allowed to partake of the cherries, on condition of not injuring the trees; but the main crop of the cherries, when ripe, is gathered by the respective proprietors of the land on which it grows; and when these are anxious to preserve the fruit of any particular tree, it is, as it were, tabooed; that is, a wisp of straw is tied in a conspicuous part to one of the branches, as vines by the road-sides as in France, when the grapes are ripe, are protected by sprinkling a plant here and there with a mixture of lime and water, which marks the leaves with conspicuous white blotches. Every one who has travelled on the Continent in fruit season must have observed the respect that is paid to these appropriating marks; and there is something highly gratifying in this, and in the humane feeling displayed by the princes of the different countries in causing the trees to be planted. It would indeed be lamentable if kind treatment did not produce a corresponding return.”

DWARFS AND STANDARDS.

“To produce a dwarf cherry tree,” says Mr. William Cobbett, which is desirable for some purposes and locations, the stock must come from the stone of the Morrello or a May Duke, a Black Heart, a White Heart, or a Bigarreau; but for a tall standard tree, select stock from the small black cherry tree that grows so universally in the woods.” The practice of modern nurserymen, however, as described by Mr. A. J. Downing, is to bud the finer varieties on the seedlings of the common black Mazzard, which is a very common kind, producing a great abundance of fruit and very healthy, free-growing stocks. Downing also recommends budding low down on young stock. For dwarfs Downing also says the Morrello seedlings are used, but standards are universally preferred.

THE CHERRY AS TIMBER.

As a timber tree the cherry ranks high. It is in value and richness next to our famous black walnut, while its growth is much more rapid. The desk on which I write is made of Michigan cherry; the household furniture next best to black walnut and mahogany is made of Michigan cherry and thence transported to all parts of the world; the best printers' furniture made in New York, Boston and Cincinnati is manufactured from Michigan cherry, and distributed from thence wherever civilization has carried the printing press. Cherry, as grown wild in the woods of Michigan, is sought for by the manufacturers of school furniture in Chicago, Boston, and New York, as the best wood they can find for their purpose. It is easily worked; receives a good polish; has a delightful lively color, and, in contrast with maple and walnut,

gives a pleasing variety of color to our decorative cabinet or carpentry work which, of late years, have introduced a new charm to dwellings, offices, stores, railroad cars, steamboats and private carriages. The wood is hard without being coarse or knotty, and its grain, though not prominent, is fine and beautiful.

THE GUM.

There is nothing in connection with the cherry which is not of interest and value. Even the gum which exudes from its wounds is precious for medical purposes, and makes an excellent mucilage of daily value in every office, library, or sanctum.

A UNIVERSAL BLESSING.

In every position of life the cherry contributes in some way to the comfort, enjoyment and service of man; its wood is used to form the cradle of infancy; the chairs, tables, bedsteads, bureaus, desks, and cabinets of mature years, and when our time of final transport to another world arrives, it commonly forms the final casket of our mortal remains. The fruit is the first to tempt our youthful appetites, for who has not stolen cherries in his boyish days? It forms the most showy fruit in the market at any season of the year only equalled by the precious strawberry; it makes unquestionably the best canned fruit in the market, as no fruit preserves in the can its flavor and its color like the cherry; as a dried fruit it has no equal in the whole realm of commerce; for the table and for pastry, the cherry cannot be excelled; for wine it is nearly equal to the grape itself, while its curative properties are universally conceded, and creates for it a universal demand. Whilst therefore it gives pleasure to youth, it comforts the aged and relieves the afflicted; whilst its rich color is the acknowledged standard of beauty on the lips of the most charming of womankind.

Need I say more for the cherry? Do not mistake me as claiming that the cherry is the panacea for every ill and the fountain of every blessing. I simply claim for it a prominent place among the fruits of our favored country, and thankful and proud should we be that we live in a land and enjoy a climate where this fruit can be grown so easily, so cheaply, and so abundantly.

REPORT

OF THE

LAKE SHORE AGRICULTURAL AND POMOLOGICAL SOCIETY.

HISTORY OF THE FORMATION OF THE SOCIETY—ITS OFFICERS—THE TERRITORY IT EMBRACES, ETC.

To the Secretary of the State Pomological Society of Michigan :

Pursuant to legal requisitions, I have the honor to submit the following as a report of the Lake Shore Agricultural and Pomological Society, located at Douglas, Michigan.

THE FIRST ORGANIZATION.

The proposition to organize a Horticultural Society was made by fruit growers of this place and vicinity, and particularly urged by D. W. Wiley, Esq., as early as the winter of 1870-71. A few unimportant meetings were held in the spring following, and articles of association partially determined. The act approved April 15th, 1871, relative to the organization of such societies appearing, new articles were framed, which were fully adopted at a meeting held Sept. 30, following.

These have not until recently been duly verified for filing in the office of the Secretary of State at Lansing.

THE DISTRICT.

The district specially named for this Society comprises the western half of Allegan County—12 townships, viz.: Lake, Saugatuck, Ganges, Casco, Lee, Clyde, Manlius, Filmore, Overisel, Heath, Pine Plains, and Cheshire.

The stated and annual meetings and the fairs of the Society are to be held at Douglas. The annual meeting is to be held on the second Saturday in November. This was determined so that the outgoing officers should make the report required to be made to your Society in the month of November—but the annual meetings have invariably been adjourned till some time in the month of January, which has hindered the furnishing of any report heretofore and caused the delay of this one.

THE FIRST OFFICERS.

The officers first elected were as follows: President, D. W. Wiley; Vice Presidents, S. R. Lewis, B. F. Dressler, R. B. Newnham, Jno. J. Holmes, Jas. W. McCormick, and R. C. Eaton; Secretary, Homer Manvel; Corresponding Secretary, E. W. Perry; Treasurer, J. S. Owen; Directors, H. H. Goodrich, J. P. Leland, Alexander Hamilton, Jas. F. Taylor, and the President and Secretary

ex-officio—Mr. Manvel, Secretary, resigned very soon after, and C. A. Ensign was elected to fill the vacancy. The officers were generally re-elected at next annual meeting.

THE FIRST FAIR.

At a meeting held as late as Sept. 2d, 1871, it was resolved to hold a fruit fair on the 12th inst., preparatory to collecting meritorious articles to forward to the State Pomological fair to be held at Grand Rapids, in September, 1871, and accordingly a unique fair was held in the unfinished store of J. S. Payne at the foot of Centre street, at which time a fine show of grapes, peaches, and apples was made, as well as some fine samples of farm produce.

From these a collection of fruit was made and placed, with a sample of mammoth squash raised by Rev. J. F. Taylor, under the care of J. S. Owen and taken to Grand Rapids. This fruit, though not regularly entered in any list, at the nomination of the President of the State Fair, for its excellence, received a special premium.

Very little practical farming was discussed by the Society during this year or the following year of '72. The subjects of "Yellows in Peaches," its causes and prevention; and also "Alden's Process for Drying Fruit," received some discussion at the meetings of the winter of 1871-72.

THE COLD SNAP OF FEBRUARY, 1872.

At the meeting of February 10, 1872, the degree of cold of February 3d was reported. At Saugatuck and Douglas the degree of cold was confirmed from 10° to 12° below zero. The higher ground in center of section 16, just west of Douglas, showed a less degree of cold,—also it was reported to be less on the lake shore in Ganges township, 4 miles south. The thermometer stood about 5° below during the night, and just before sunrise sunk to the extreme, where it remained but a few minutes and began to rise.

THE DAMAGE.

The damage done by this cold was not very great, as shown by the crop of fruit the season following. The same degree, with a less favorable condition of the last year's growth of wood, might have been far worse to peach orchards. The amount of fruit borne by the orchards of this vicinity this year, 1872, was quite equal to what trees should bear. The effort of the Secretary to obtain complete statistics of orchards and fruits have so far failed to gather anything like a complete record.

VARIETIES OF PEACHES.

At the meeting held March 9th, 1872, the subject of varieties of peaches best to plant here was discussed.

Mr. A. Hamilton gave his list as follows: 5 per cent Hale's Early; 10 per cent Large Early York; 10 Old Mixon; 25 Early Barnard; 20 Early Crawford; and 30 of the Monterey or Cass seedling. The Early Barnard was preferred in the hands of attentive growers as hardier, more productive, as fine in flavor and appearance as the Crawford; would not recommend it to those who never take care of their trees, as they are liable to bear too much fruit to give fair size and need thinning, while the Crawford's do not.

Mr. J. S. Owen gave in his list about an equal number of each Early Crawford, Jacques Rareripe, Early Barnard, Late Barnard (Hill's Chili), Old Mixon and Ward's Late. He approved Mr. Hamilton's opinion of the Early Barnard, and gave as an additional reason for planting the Barnard in place of Crawford, in part, that it bears younger. It was stated that the Barnard ripened nearly

all at once; the Crawford had a longer season of ripening; no other full lists were given; Hale's Early was said to rot badly when the soil was worked, or the tree stimulated, during the growth of the fruit. It was feared those who planted very largely of this variety here would measurable fail.

During the summer meetings of the Society were not held.

THE FAIR OF 1872.

The directors appointed and published the 13th and 14th days of September for the second fair to be held at Douglas. The weather was fine, but at this time a great deal of sickness prevailed and prevented many worthy entries. The entries and display of fruit were excellent,—very few entries of cattle, &c. The receipts of the Society at this time reached nearly \$175 00,—more than covering all expenses incurred, and the interest awakened and manifested is hoped to lead to better methods and more careful culture of those products so natural to this region.

Owing to several impediments—prominent among which was the illness or feebleness of those most suitably appointed to take charge—the fine collection of fruit intended for the Grand Rapids Union Fair of 1872 could not be forwarded, and no representation of this district was made at that time and place.

OFFICERS FOR 1873.

The annual meeting in November was adjourned from time to time to January 18th, at which time the following elections were made for the current year: President, D. W. Wiley; Vice Presidents, B. F. Dressler, R. Mack, J. Laursen, J. Wadsworth, Thos. Grey, and J. F. Taylor; Secretary, C. A. Ensign; Treasurer, D. C. Putnam; Directors, J. S. Owen, J. F. Taylor, L. Loomis, H. H. Goodrich, and the President and Secretary.

DESCRIPTION OF THE TOWNS AND TERRITORY.

Agreeably to a suggestion made, the following notes of this district are made:

The three principal rivers of Michigan have a common source in Washtenaw County,—the St. Joseph, the Kalamazoo, and the Grand rivers. The Kalamazoo, lying midway between the other of these rivers, enters Lake Michigan on the south line of fractional section 4 in T. 3 N., R. 16 W.—known as Saugatuck township.

Immediately to the north of the mouth of the river lie one or two sections of dunes or shifting sands, the only instance of the kind in the lake line of this county—Allegan. Still further northward upon the shore lies a strip of rolling country of sandy soil—from 2 to 2½ miles in breadth, occupying about two-thirds the width of the fractional township of Lake. Although the soil is denominated "light" and "very light" it is by no means despicable, as shown by its timber and crops. Fine crops of wheat and corn are grown here by good tillage, but farming in this vicinity is often done most slovenly. Many locations in this section are excellent for the peach with respect to position to receive protection from the lake—and the uncultivated fields abound in luxuriant growths of wild raspberries and blackberries.

The east one-third of this township, the entire of Filmore, nearly all of Overisel, and the parts of Saugatuck and Manhus lying north of the Kalamazoo, constitute a district of fine farming lands of rich loam soils, gently undulating surface, except immediately upon the Kalamazoo River, which, with its rivulet tributaries, has somewhat broken the ground. The township of Heath, east of

Manlius and also divided by the Kalamazoo, reaches well into the Pine Plains country, a zone of "light sandy pine barrens" several miles in width, crossing the county and dividing the fine fertile belt of the lake shore from that excellent farming section, the eastern portion of the county. To the southward of the river,—including the south part of Saugatuck, the southwest part of Manlius, the principal part of Ganges, a few sections in the northwest of Clyde, and the entire of Casco (a lake township) lies a district of level, rich country of farming and fruit lands—quite variable in soils, but with little if any waste—gently sloping to the lake, which it meets with a ledge of the general surface from 30 to 60 feet above the water line—all in excellent shape for receiving the influence of the lake against early frosts and the extremest severity of the winters as shown by the experience of farmers and the thermometer record of the last two cold winters. This tract is 15 miles long with an average of 6 or 7 miles width, the eastern border on the plains conforming to the trend of Lake Michigan which recedes in its line to the southward—about 3 sections or 9 miles at the "Base Line."

The greater breadth of Lake Michigan lies opposite this section: with the atmosphere passing over the lake the cold has never exceeded 5° to 7° below zero on the shore, as evinced in the record of the cold New Year's of 1864, when the storm was from the west. Severer cold has been experienced here, however, though very seldom, as in the winter of '54 and '55, when it reached about 20° below zero, and next in '72, 12° below, and again this year ('73), 20 below zero. In all these cases the cold has been of but a very brief duration, with a slight atmospheric movement from the east,—a reaction induced by the lower temperature of the lake and a severe cold, still night,—the extreme cold occurring at or just before sunrise. All the circumstances naturally attending such cold here prevent any disastrous result to the peach so far. The river Kalamazoo, in sections 9 and 16, Saugatuck, widens into a lake one-half mile by one mile, to which the aborigines gave the name "Kalamazoo." This lake is inland about one-half mile, but about two miles by navigation to the greater lake; it is 22 feet in depth, and with the river below forms a grand capacious harbor. Its entrance not having received its proportionate improvement with other harbors of the east shore, it lost prestige. It is now being considerably improved, however, and with the care bestowed on its sister ports, will scarcely rank second to any. The towns of this port are: 1. Singapore, in section 4, of notoriety in former times as the site of the "Wild Cat" "Singapore Bank," but now is known only as a location of one of the best appointed lumber mills in this country. 2. Saugatuck, a mile above, in the central part of section 9, a village of about 1,500 population, platted as "Kalamazoo" as early as the land came into the market, in 1834; afterwards known as "Newark," and incorporated as "Saugatuck." 3. Douglas, upon the opposite (south side) of Kalamazoo lake, in the central part of section 16, containing about 700 people. This village was platted in 1861, and incorporated in 1870. During the summer season this harbor has direct communication with Chicago by steamer line. The township of Casco has the port of South Haven, at which place the Saugatuck steamers stop as a convenient outlet for produce. This Haven is situated near the Base Line, the south line of Casco. The C. & M. L. S. R. R. passes along the eastern border of the more valuable farming section, and affords a prompt shipment of fruit northward to Muskegon and Grand Rapids, as well as to Chicago. Fennville, a station in section 5 of Clyde, received by far the more shipments, being convenient for the township of Ganges. The more con-

venient station for Saugatuck is Richmond, at the crossing of the railroad over the Kalamazoo river, and for Manlius township the station of same name one mile farther south.

A SPLENDID FRUIT COUNTRY.

To the reflective mind the district here described is naturally endowed to become one of the most populous and wealthy fruit regions of the United States. Its climate, its soil, its surface and peculiar conformation to receive lake influence, and its position to the vast non-fruit-bearing regions of the West, all point this out, but several events and influences have conspired to retard this condition, the financial disaster of '37, just as eastern enterprise had taken its first step towards its improvement, driving all this back, and the consequent depression worked ill in many ways. Then the lumbering interests lured men away from their farms, which were kept in slovenly occupancy for long terms, and the habits of the lumber men begat a reckless slashing of timber in a way that rendered clearing doubly expensive. A few men who gave skillful attention to their farms, as J. McCormick of Manlius (section 31) and McDowell of Casco, have acquired beautiful homes and wealth.

THE COLD OF DECEMBER, 1872.

On Sunday morning, December 22d, the thermometer indication was generally 14° below zero at 8 o'clock, and very gradually rose all day, reaching 14° above at evening.—one or two observers reported no lower than 12° below.

On Tuesday the 24th the mercury reached 20° below zero by quite a number of reports for Saugatuck,—at Douglas 21st by Mr. Wiley's thermometer set in the apex of a snow bank,—16° by Mr. Owen's observations one-half mile nearer the lake, and on more elevated ground. Three miles south on the lake beach, Mr. Dressler contends no greater cold was experienced than 12° below. Mrs. Corner, inland over a mile, 16° below. S. R. Lewis on section 3, Ganges—2 miles inland, reports only 14°; others still farther south and nearer the shore report 18° below; at Fennville, 6½ miles inland, the thermometer indicated 23° below; at Richmond, 6 miles inland and back of Douglas, 26° below is reported. The cold increased rapidly from 5 o'clock that morning, reaching the extreme at the earliest dawn of day, 7 A. M., and rose briskly, reaching zero by noon. It is firmly believed that the greater part of the buds of a number of varieties of peaches are killed, that the tree and twigs are not harmed by this cold in this vicinity.

Very respectfully,

C. A. ENSIGN,

Sec'y L. S. Agricultural and Pomological Soc'y.

DOUGLAS, Mich., Jan. 21st, 1873.

THE ADVANTAGES OF AN ARBORETUM.

READ BY PROF. W. J. BEAL IN REPRESENTATIVE HALL, LANSING,
WEDNESDAY EVENING, JANUARY 22, 1873.

An Arboretum is an artificial collection of living trees and shrubs, including those raised for fruit, of course. It is more limited in signification than Botanic Garden, which means a plantation of herbs as well as trees and shrubs.

Europe possesses large numbers of Botanic Gardens. They are found in or near Naples, Florence, Turin, Milan, Leipsic, Berlin, Paris, London, and many other cities and villages. Some are celebrated for one family of plants, while others excel in several departments. The gardens of Munich and Nymphenburg excel in palms; that of Edinburgh in heaths; that of the London Horticultural Society in trees. Many of these gardens contain museums of vegetable products in various stages of growth or in different degrees of advancement in their manufacture. All or nearly all have an herbarium,—a collection of dried plants properly named,—a library of works on botany and kindred subjects, and green-houses for raising trees, shrubs, and other plants too tender to endure the cold of northern climes.

Gardens of more or less pretension are as ancient as the human race. One of the oldest now in existence was founded by Queen Elizabeth at Hampton Court, continued under Charles II. and William III., and since rendered still more illustrious by Leonard Plunkenet, one of the most active of plant collectors. One of the richest gardens known is that of Prince Eszterhazy at Kismartony, containing 70,000 species of plants. The United Kingdom of Great Britain has at least ten public and thirteen private Botanic Gardens. The Kew Garden, near London, surpasses all the rest. It was first opened to the public in 1840, when it was put under the directorship of Sir William J. Hooker. The whole grounds include 345 acres, a large part of which are covered by native forests. The garden proper contains about 60 acres. The grounds contain at least nine large green-houses, among which is a palm-house, 100 by 362, and 66 feet high. The Kew Garden not uncommonly contains 1,200 visitors at one time, and during the whole of one holiday it reached over 28,000. The yearly amount appropriated for its support would be considered extravagant by many of our Western people.

France has at least twenty-five prominent public gardens; little Switzerland has five; Denmark four; and poor sterile Sweden supports five. Each of the following places has one, and perhaps some of them more: Bombay, Ceylon, Calcutta, Cape of Good Hope, Canton, Mexico, Rio Janerio, Chili, Teneriffe, Cambridge, Mass., New York, Philadelphia, Washington, and St. Louis. Each has made a good start.

As near as I can learn, the first successful attempt in this country at a Botanic Garden was made near Philadelphia, in 1730, by John Bartram. One of the best in the United States was started in 1800 by Joshua and Samuel Peirce at Westchester, Penn. Probably the Arboretum containing the greatest number of species of any in this country, has been quite recently started on the College Campus of the Ohio Wesleyan University. It now contains 600 species, though most of them are still too small to make much of a display.

I do not know that Michigan has any yet worthy of the name. A small beginning has been made at the Agricultural College. If the prosperity of the State continues, and her school system holds its rank, I have no doubt that she will have a number of Botanic Gardens started within the next twenty or thirty years.

I will briefly enumerate some of the

USES OF AN ARBORETUM.

Nearly all of our prominent cities are spending large amounts on parks for the health and pleasure of their people. Chief among the attractions of a park are trees and shrubs. The study of these and the interest they awaken would be much increased by giving a greater variety of plants to the parks. Some of them are now monotonous on account of too many plants of one kind. Private grounds and cemeteries could be made much more attractive by planting a greater variety of trees and shrubs, appropriate to each particular spot.

The Prairie States are already extensively engaged in planting for timber and shelter, but no man knows for certain whether he has the best trees for his purpose. It may seem too soon to talk of raising forest trees in Michigan, so celebrated for her extensive forests; but at the present accelerated rate of cutting off timber, the next generation must begin to look out for a supply of some kinds either by importation or raising. I heartily indorse what Mr. T. T. Lyon says of the importance of timber belts.

It will take some years for Arboreta to get established so as to be very instructive, hence the great need of starting them soon. The expense is very trifling when we think of the advantages which would arise from it. "Its utility is as obvious and important as any other museum of natural history,—certainly not inferior to any in the intrinsic value of its connection with arts and manufactures, and presenting a school of instruction that will largely tend to advance our progress in the knowledge of vegetable physiology, and furnish a strong incentive to botanical studies. Unlike many other museum collections, this will constantly vary in its beauty and attractions; the yearly development of individual forms, with its combinations of form, foliage, flowers, and fruit the opening buds in spring, and the gorgeous hues of the autumn foliage, represent extreme periods between which each day has its own peculiar beauties. To the artist, such a collection presents a field where may be studied the form of every leaf and outline of the superior vegetation of the temperate zones; and the botanist will here find the material living presence of those objects which, in their more refined relations, enter into his abstract and recondite arrangements."*

Such a garden will be the delight of the nurserymen, as here they can then see what would be hardy, and most suitable to ornament the grounds of their customers. As a part of this Arboretum should be an experimental garden of orchard fruits, where should be found all the fruit trees hardy in our climate,

* Report of U. S. Department of Agriculture, 1867.

with their various modes of training, pruning, and culture. In connection with the Arboretum it would be very useful to have green-houses well supplied with various economic plants,—those valuable in medicine, for dyeing, those used for gums, resins, ornament, or those furnishing articles of food.

A museum of vegetable products also would tend to make the establishment complete in all its departments. This they are beginning on a large scale at Washington. The authorities estimate that there are 2,248 species and varieties of trees and shrubs which will thrive in the open air in that latitude.

With our severe winters, where the thermometer sometimes reaches 33° below zero, and often 15° below, I think the number of hardy trees and shrubs would be reduced to 1,200 or 1,500 species and varieties besides the varieties of fruit trees.

Quite a nice start can be made in such a collection by getting all the trees and shrubs which can easily be picked up in any neighborhood, and by purchase of our nurserymen. After this we shall be obliged to resort to the slower process of exchanges with like collections in our own country and in foreign countries. It will need constant vigilance and some money to get trees and shrubs from distant countries, through missionaries, travelers, and merchants.

We have already begun an Arboretum at the Agricultural College. We have taken several small specimens of each kind we could get in the neighborhood, and placed them temporarily in nursery rows, where some will die, some may harden, some may be used in exchange; and when we get enough together, they may be set in groups where they are to be permanently located.

Nearly all methods have been tried in the arrangement of an Arboretum, each having its advantages and disadvantages. Some try to show to the intelligent visitor the geographical distribution alone, by having a part of the garden for plants from Europe, a part from North America, while each of the other grand divisions of the globe has its corner. Others put trees together, shrubs together, and herbs together. Others attempt to arrange them solely with reference to landscape effect, though in this they must fail, to a great extent, because so many of their plants are new and their habits of growth are not known.

The prevailing tendency now seems to be to arrange them in groups, according to the natural orders or families. This method puts all the oaks together, and near them all the chestnuts, and near these the beeches and hazels, iron-woods and blue beeches. These plants just mentioned constitute one of the largest and most important natural families.

In another spot may be placed all the cone-bearing plants (*coniferæ*) including our pines, cedars, spruces, larches, and cypresses. Another order includes all the poplars and willows; another, birches and alders; another, hickories and walnuts.

In each of these natural orders geographical distribution can be shown to some extent,—for example, by arranging the pines from North America on one side of a drive or path, and those from Europe on the opposite side. Each natural order should have a large label near it, containing its name, and each plant should be conspicuously labeled. These natural families can be dotted here and there over the lawn, and may be easily reached by paths and drives running through and around them.

The importance of such a collection must be apparent to all cultivated minds. The study of trees can not be otherwise than ennobling to all who behold them, whether he be artist, botanist, arboriculturist, or man of culture

who is seeking for novelties with which to adorn his grounds and make home pleasant. Trees and shrubs are the cheapest ornament.

Many of our native trees and shrubs are preferable to those from distant countries. The shrewdest men have long since discovered that no money pays a better interest than that used by skillful hands in making a home pleasant. If you wish to sell a place, it is sure to pay more than 20 per cent on the investment; if you want it for a permanent home, who dare say it pays less? More attention to these subjects is one of the greatest wants of our thrifty Western people.

THE FERTILIZATION OF PLANTS.

On Thursday evening, January 24, in Representative Hall, Professor Beal was called upon to make some explanations about the fertilization of flowers. He responded as follows:

Suppose my hat, with these papers stuck upon it, represents a strawberry blossom. There are the showy petals, and there the slender stamens, each bearing a pouch at the tip full of dust called pollen, and in the center or top of the flower other small bodies called pistils, the top of which are naked and sticky, without epidermis. That the vines bear fruit, it is necessary for the dust to fall upon the naked portion of each pistil. This is the structure of the Wilson strawberry; but some of our cultivated varieties bear no pollen in the pouches. These will produce no fruit without receiving pollen from other plants. Insects transfer this pollen from flower to flower. In Indian corn the pollen is all on the tassels at the top of the stalk. The threads of silk on the young ear run down, each to what is to become a kernel. A speck of pollen falls on the end of each silk, and grows down several inches to fertilize the embryo kernel; else there will be no corn formed.

Cucumber vines and vines of melons, squashes, pumpkins, all like Indian corn, have two kinds of flowers on different parts of the same plant. A small part of these flowers (may be one in five) has a large bunch at the base of the flower which becomes the fruit if it be fertilized. The vines are low, the pollen slightly sticky, and situated down deep in the yellow part of the flower. This dust cannot get to the pistil unless insects carry it there. The little striped bugs, considered such pests on the young squashes, when first out of the ground, are found covered all over with the pollen as they go about for the honey in the flowers of older plants. If there were no insects, there would be no melons, squashes, nor cucumbers. They would perish. Each helps the other. Insects eat the young plants and honey of flowers, but help in reproducing plants to pay for their food. Bees carry pollen as well as the striped beetles.

It has been suggested that the Yellows in the peach are transmitted by insects visiting the flowers. This seems to me quite probable, though I have not proved it. There is an idea, which some physicians have some testimony to sustain, that diseases, like the small-pox, are transmitted by the common house-fly. Then why not transmit the Yellows to the naked tip of the pistil? Mr. Charles Darwin, an eminent English experimenter as well as theorizer, proved some years ago that there would be no seed in our common flax plants without the aid of insects to carry the pollen. This seemed incredible, because each flower has pollen and pistil close to each other, so that they always meet. Insects do the work. Our common garden beans would only be half a crop without the aid of insects, though the flowers all have both stamens and pistils touching each other. Our common blue flag, and all cultivated plants called *Iris*, have the flowers so constructed—which I cannot well explain without

diagrams—that it is impossible for the pollen of a flower to get to the intended place without help from insects or other artificial means. Wind can not do it in this case. This is exceedingly strange, when we see the stamens full of pollen within a quarter of an inch of the tip of the pistil. Large numbers of plants, as the orchids and milkweeds, have the same peculiarity. This brings up a vast field for experiment and study.

I have experimented with many hundreds of flowers of different plants, repeating what others had done, and making new discoveries. You can make squashes come true to seed every time, I do not care how many kinds there are together, if you carry the pollen yourself to a young flower and then tie it up to keep off the insects.

Many flowers are known to be self-fertilizing. A few rare cases are known in which plants will have good seeds which will grow, even without any fertilizing by pollen. In one case a plant was taken from Australia to England. It was of a kind which bears only pistillate flowers on one plant and only staminate flowers on others. Our willows and poplars all have such flowers, and the different sexes are often some distance from each other.

The pistillate plant spoken of had no stamens nearer than Australia, yet it bore seeds which grew. The plant was carefully hunted over repeatedly by good observers, without ever finding a stamen. Seeds from this plant in England produced plants which were nearly all pistillate, whereas seeds raised on plants which had been fertilized were about equally pistillate and staminate.

This brings up the whole matter of hybridizing and crossing plants artificially at the will of the experimenter. There are real principles in such experiments, as important for the horticulturist to know as for the agriculturist to understand the principles of stock-breeding. Both will experiment at random with little chance of success unless he understands these principles.

GRAPES.

THE GRAPES RECOMMENDED BY THE STATE POMOLOGICAL SOCIETY.

BY T. T. LYON.

The fourteen grapes recommended by the Society are as follows :

Market—Hartford Prolific, Eumelan, Delaware, Israella, Concord, Iona, Ives' Seedling.

Family.—Hartford Prolific, Eumelan, Delaware, Concord, Diana, Agawam.

Amateur.—Adirondac, Crevelling, Croton, Eumelan, Delaware, Israella, Iona, Allen's Hybrid, Rebecca, Diana.

Mr. Lyon described these grapes in a valuable paper read at Battle Creek. The original copy was sent to the MICHIGAN FARMER for publication, and there was destroyed by the disastrous fire which occurred in April, 1873. A portion, however, had been published, and this we preserve.—[SECRETARY.

It has been thought important to spread upon the records of the Society a history and description of the more important of the fruits recommended for general cultivation, as the most ready means of bringing the facilities for a ready identification, and a careful study of their peculiar qualities, within the reach of the people of our State. In so doing it devolves upon me to devote my attention to the lists of grapes, recommended by the standing committee on lists of fruits. In the endeavor to bring the history of these fruits before you, it has seemed to me the most convenient and natural to follow the history of each in the order of their introduction to the public as nearly as possible.

THE DIANA GRAPE

originated at Milton, near Boston, Mass., from seed of Catawba, planted by Mrs. Diana Crehore, in the autumn of 1831 or 1832. The plant (having been once removed) grew very slowly, producing its first fruit in 1838. In the spring of 1843 it was pruned for the first time; and in the succeeding autumn Mrs. Crehore exhibited the fruit for the first time, at the rooms of the Massachusetts Horticultural Society, for the purpose of learning *whether it was a new variety or not*. It was again exhibited in the year 1844, and the committee of the Society characterized it as "undoubtedly a more valuable variety than any other we possess," as a crop may be relied on for a certainty; and, in compliment to the originator, named it the Diana grape.

The earliest engraving of this grape at its new England home, will be found in Hovey's Magazine of Horticulture, Volume XVI. (1850), at page 33, appended to which is the following description by the editor:

"*Vine*, vigorous, making rather slender wood when young; but growing more rapidly after it has attained age. *Wood*, light brown, rather long jointed. *Leaves*, similar to the Catawba, without lobes. *Bunch*, medium size, about

four inches long, without shoulders; berries, medium size, round, closely set, forming a compact cluster, of a delicate pale red color, with a high delicious flavor. *Seeds*, generally two, rather small. Ripe from a week to ten days before the *Isabella*.

"It is a most abundant bearer, and has less of the taste peculiar to our native grape than any other variety. It also possesses a peculiarity which we have not noticed in other sorts; as early as the 1st of September, when the berries first change to a grayish tinge, they are quite sweet, and agreeable to the taste, but they do not acquire the high flavor which constitutes its great excellence, until they assume their full color, when it is one of the handsomest grapes we have seen."

At the Second Congress of Fruit Growers (now Am. Pom. So.), held in October, 1849, this grape was placed on the trial list.

So unfavorable, however, is the climate of New England to the growth of the finer varieties of the grape, that this new candidate seems to have developed too little merit to attract general attention; and it was not till plants had fruited in the grounds of H. W. Sargeant, Esq., of Wodenethe, in the valley of the Hudson, and there attracted the attention of the late A. J. Downing, the founder, and at that time the editor of the *Horticulturist*, that its real importance, as the herald of a coming improvement in our native grape, came to be better and more generally appreciated.

Although to-day the *Diana* ranks quite low in the list of desirable varieties of grapes, we can hardly be at a loss to understand why it should have been so warmly welcomed, when we reflect that it was the first, and a very broad step toward adapting the better class of American grapes to our more northern climate; and we may be warranted in characterizing it as the very first American grape capable of being grown with a certainty, to eatable condition, in the open ground, in the climate of Boston, if not of New England.

The first actual engraving and description of this grape appears in the *Horticulturist* for November, 1849, as follows:

"The *Diana* is a seedling from the *Catawba*, and in general appearance and character resembles its parent. It is, however, an entirely distinct variety, of a more delicate, pale, red color, with less pulp and more juice than the *Catawba*. The bunches are also distinct, being quite compact, while those of the *Catawba*, are always loose. It is an abundant bearer, and in its growth is equally vigorous with its parent. The *Diana*, when fully ripe, is a finer flavored grape than either the *Isabella* or *Catawba*. It more nearly resembles the latter in flavor, but is more delicate, and has less of the peculiar wild taste of the native grape."

These commendations sound strangely in the ears of the Pomologists of to-day; and the more so when we institute a comparison of this with many of our more recent acquisitions, but it should be remembered that at this time we could only institute a comparison of this with *Isabella*, and *Catawba*; the latter of which was at that time seldom known to ripen perfectly north of Cincinnati, and never with free exposure, at Boston. Besides, we then had not known that, for a time, peerless variety, which has since come to be the standard by which the qualities of all others must be measured—the *Delaware*.

Diana is only recommended by this Society as a keeper,—a purpose for which its thick skin especially fits it. One of its prominent failings is a habit, on moist, rich, strong soil, of growing late, and failing to mature its wood; while, under these circumstances it is also usually unproductive, and liable to

winter-kill. On warm, dry, light soils it often produces even to excess, making growths of short jointed and fully matured wood. It can hardly be called an early grape, although it will be found sweet and comparatively palatable, even when but partially colored, and to those who do not object to its "foxy" or as it is sometimes called "catty" aroma, it will be found just tolerable. It is usually eatable as soon as the middle of September, but will continue to improve in quality till injured by severe frosts.

THE CONCORD GRAPE.

Was originated and introduced to the public by E. W. Bull, of Concord, Mass. It received its name from the place of its origin,—the town of Concord; very near the spot so memorable in history as the Concord battle ground. The first extended notice of this grape appeared in *Hovey's Magazine of Horticulture*, for February, 1854, accompanied with a description and outline. It is described as follows:

"*Bunch*, large, long, neither compact nor loose, handsomely shouldered. *Berries*, roundish, large, three-quarters of an inch in diameter, sometimes measuring an inch. *Skin*, thin, very dark, covered with a thick blue bloom. *Flesh*, very juicy, nearly or quite free from pulp. *Flavor* rich, saccharine and sprightly, with much of the delicious aroma of the Catawba. *Vine*, very vigorous, making strong wood. *Leaves*, very large, thick, strongly nerved, not much lobed, and woolly beneath."

Mr. Bull gives the following history of its origin: Some years previous to its origin he found a chance seedling growing upon his grounds, near a wall. As there were no wild grapes in the vicinity of his place he removed it to his garden, where he watched it with some care, and gave it good cultivation. In a year or two it produced a few bunches of fruit, ripening as early as the last of August, and remarkably sweet and free from the foxy flavor of the wild type. The idea at once occurred to him that another generation would be still a greater improvement, and a parcel of seeds was saved for planting. The Concord grape is the produce of these seeds.

This grape was first disseminated in the spring of 1854; having first fruited four years previously. The vine from which sprang the seeds spoken of had been planted near a vine of Catawba; hence the producer infers that such seeds may have been the result of a natural hybridization with that variety.

As a rule, new varieties, at their first introduction, are over praised, and no doubt honestly over-estimated, by their partial and usually enthusiastic introducers; and we can hardly fail to discover, from the above description, that this variety is not to be considered an exception to the rule. Notwithstanding this over-estimation, the Concord has proved a valuable acquisition, and has served an important end in educating the taste of the masses to some degree of appreciation for a class of fruits, to which, without it, they would have been still, probably in a great degree, strangers. Possessed of extreme vigor and hardness, such as suffices to enable it to bear with comparative impunity, the treatment meted out to it by a class of planters acting upon the idea, too common with the great mass of our people, that a vine stuck in a hole, and the earth tramped about it, will thereafter be able to take care of itself,—this variety has been able, in defiance of such treatment, to give results such as have, in multitudes of cases, fairly won a degree of respect and appreciation, such as a variety of better quality, but of less hardy constitution, could scarcely have secured. Coming out, as it did, almost contemporaneously with the Delaware,

it served as a means of educating the penchant of people for this fruit up to such a point as led to an appreciation for higher quality, and prepared them to accept the more laborious and pains-taking task of winning success with that and other finer but more exacting varieties.

Although, from the first, our better informed and more discriminating fruit growers, were conscious that the Concord was lacking in high quality, and hence accepted it merely as filling a vacant place, till something more desirable should arise, and although numerous varieties, in some important particulars decidedly improved, have arisen to meet this deficiency; no one has yet been found capable of supplying the high quality desired, except at the sacrifice of more or less of the valuable points which have so strongly recommended this for general cultivation as a market variety. True the Delaware is to a considerable extent encroaching upon it in our markets, and also as a family fruit, and it is earnestly to be hoped that such encroachment will go on at an accelerated rate; still for the great mass of non-appreciative growers, as well as buyers, we are compelled to fall back upon the Concord, and the more appropriately so for the reason that it seems to be improved in quality, as we go south, and indeed in some localities, as in Missouri, it has come to assume the position of the leading wine grape. In Michigan it will usually ripen from the middle to the last of September.

THE HARTFORD PROLIFIC

sprang up as an accidental seedling in the garden of Raphio Steele and Son, of West Hartford, Connecticut, and first fruited about the year 1849. It was introduced to the public, and its history published in a letter to the Magazine of Horticulture, then published by C. M. Hovey at Boston, dated February 13th, 1852; written by Gurdon W. Russell, of Hartford, who stated that it had been upon the tables of the Hartford County Horticultural Society for three years, and that Mr. Steele had shown well-ripened specimens on the sixth of the previous September; at least two weeks before the ripening of the Isabella in that locality, and that this Society had conferred upon it the name Hartford Prolific. The letter of Mr. Russell closes with the following paragraphs: "Of course it is not to take the place of the Isabella; the grape is yet to be, that will do that; but for certain localities it is, in our opinion, just the grape. In the mountain towns in this State, the Isabella does not ripen one year in four; in some of them not at all. For those places this variety is to be recommended; being early, and of good flavor, with very little foxiness, and infinitely superior to the whole herd of wild grapes."

This is certainly a very commendably modest introduction, and is indeed one of the very few cases in which the introducer of a new candidate for public favor has failed to over-estimate it.

It was shown, with a letter of introduction from the same gentleman at the session of the American Pomological Society held at Boston in September, 1854, where it elicited the following notice from the committee on native fruits:

"Bunch medium size, loose; berry medium size, round or nearly so, black; pulp large, sweet, juicy, with a strong foxy perfume; scarcely good. (Very early.)

"W. D. BRINCKLE, *Chairman.*"

It is described in the latest revised edition of Downing's Fruits and Fruit Trees of America as follows:

"Bunch large, shouldered, rather compact. Berry large, globular, with a

good deal of the native perfume. Skin thick, black, covered with a bloom. Flesh sweet, moderately juicy, with considerable toughness and acidity in its pulp. Ripe among the very earliest. An early variety for marketing, but too liable to drop its fruit from the bunch as soon as fully ripe. Hardy, vigorous, productive."

Coming to the notice of the public as this variety did, just at the dawning of the era of improvement in the native grape, it was placed in competition with Diana, which preceded it;—with Concord, with which it was cotemporaneous, and also with Delaware, which, in its long and doubtful struggle for popular appreciation, both preceded and followed it; to say nothing of Allen's Hybrid, Rebecca, Crevelling and others, all of which were its superiors so far as mere quality is concerned, it never assumed the prominence of many of its competitors; and indeed its lack of high quality would long ago have consigned it to the rejected list, but for its great beauty when upon the vine, together with its extreme earliness, and the vigor and hardiness of the plant; which enables it to meet the kind of management practiced by the great mass of planters, and also to fill a place as a market and family fruit for which it has, as yet, no proper competitor; although there are strong reasons to hope that ere long it will be compelled to step aside to make way for more worthy aspirants; and hence it is doubtless wisdom on the part of planters to employ it but sparsely, as indeed they generally seem to be already doing. Ripens in Michigan about the first week in September.

THE DELAWARE GRAPE.

Probably no one of our native fruits presents a more interesting and instructive illustration of the slowness of the public mind to appreciate quality as distinguished from mere quantity in fruit, and of the struggle and ultimate triumph of eminent merit over multiplex and varied difficulties than does the Delaware; while it at the same time demonstrates how easily a gem of eminent worth may be hidden away for an indefinite period, waiting an appreciative eye (or taste) to spy out its real value, and thrust it forth to challenge the appreciation of the world at large.

This grape was first figured and described in the *Horticulturist*, then under the editorial management of P. Barry, of the Mount Hope Nurseries of Rochester, New York, in the November issue for the year 1853, from specimens furnished by the introducer, Mr. A. Thompson, of Delaware, Ohio, the place where it first attracted the attention of pomologists, and from which by common consent it has derived its name.

Mr. Barry in noticing it states that about three years before it had been sent to him from the Ohio Fruit Growers' Convention, by M. B. Bateham then connected with the Ohio Cultivator; and it had doubtless, at, if not before that time, been noticed in the Ohio papers. Mr. Barry arrived at the conclusion that it was an American grape; although the more common belief at that time was that it was a European,—either Traminer or Red Resling,—the former being one of the most famous of the German wine grapes. This supposition was strongly confirmed by the evidence of an old and intelligent vine-dresser, fresh from Germany, who thought it to be the Traminer. It was also for a time regarded as a foreign grape by the late Nicholas Longworth, of Cincinnati, who had expended large sums of money in the futile effort to acclimate the European grape in America for wine purposes; and who, for that purpose, had tested almost all the accessible foreign varieties in his grounds, meeting with utter failure in the attempt.

In connection with the outline of this fruit, Mr. Barry says: "The grape itself, as well as its history, is worthy of more attention. The bunch is small, very compact, sometimes shouldered. Berries small, round; skin, thin, of a coppery rose color; pulp, very little; flavor, sweet, but sprightly and pleasant."

It had, however, been brought to the notice of the Ohio Pomological Society by Mr. Thomson, in the autumn of 1851, and also noticed in an article published in the Ohio Cultivator in 1852.

From the best information before the public the following seems to be an epitome of the history:

Mr. Paul H. Provost, of Swiss descent, was compelled to emigrate to this country to escape political proscription, and settled at Frenchtown, Hunterdon County, New Jersey. It is claimed that he brought with him, or subsequently imported a collection of European grapes, which were planted in his garden at that place; and it is supposed that this was one of that collection, and hence the conclusion that it is a foreign variety. It is understood that such importation occurred probably more than half a century ago, from the fact that when this grape began to attract attention these vines had been so long dead that, with the exception of this one, they had been forgotten. Mr. A. G. M. Provost, a grandson of the former, (long since deceased) thinks his grandfather obtained this from Hare Powell, of Philadelphia, and states that they called it the Powell grape. A Mr. Ruff obtained this grape from Mr. Provost at a very early date, and others who had it from him called it, locally, the Ruff grape. Others whose vines are traceable to the original stock, knew it as the French grape. It is also claimed that there are persons yet living in Bucks County, Penn., who were acquainted with this grape as early as 1823; which is accounted for by the alleged fact that a Mr. Bergstrasser, of New Jersey, disseminated it somewhat extensively in the northern part of Bucks County, he having obtained his vines from Mr. Provost through a Mr. Canoa, also of New Jersey, he giving the name French Wine grape, because Mr. Provost was called a Frenchman.

In the year 1841 Mr. Richard Warford, living some six miles from Delaware, Ohio, brought from Frenchtown, N. J., for his neighbor, Benjamin Heath, two vines of this variety, one of which Mr. Warford received for his trouble, and the other was planted by Mr. Heath; and from these two vines have sprung all the genuine Delawares that have been disseminated from that locality. These gentlemen received it under the name of Italian Wine grape, according to the statement of a Mr. Ott, writing to the Gardener's Monthly. Fruit from these vines was offered for sale in the streets of Delaware, and thus attracted the attention of Mr. Thompson, through whose appreciation and that of George W. Campbell, also of that place, it was rescued from its protracted obscurity and sent forth to become, what it has proved in an important sense to be, the educator of the public taste to a higher appreciation of the possibilities to which in the process of the improvement of this fruit we may reasonably aspire.

For an age prior to the introduction of the improved native varieties of the grape, our pomologists, discouraged apparently by the fixedness of character of our natives, had directed their energies to the introduction and acclimation of the European grape (*vit's vinifera*). Beyond doubt millions of dollars in money and labor had been wasted in the hopeless effort, and discouraged at the utter failure in this direction, we were just beginning to see the dawning light of improvement shed upon us by the introduction of such varieties as

Diana and Concord, with mysterious hints of others yet to come, when the Delaware was proposed to be added to the list. Possessed as it is with so many qualities both of vine and fruit, apparently akin to the foreign, and coming before the public without pedigree or history, it is not surprising that many pomologists, warned by past failures, refused to accept it till cleared from the taint of alienism. The result was a thorough sifting of its history, and a wordy war of more than 20 years' duration, carried on through the pages of the horticultural press, but nothing better than probabilities seem to have been arrived at as to the facts of its origin or parentage; and we would no doubt be to-day as far as ever from a conclusion, but for the fact that its opponents have failed to identify it with any known foreign variety, and that even more significant fact that it has, in the hands of thousands and even millions of cultivators, during this same period, been demonstrating its freedom from the peculiar vices of the alien stock from which its origin was alleged to be derived.

It is not by any means an easy variety to propagate, and when it finally began to gain upon the confidence of the public, the demand for plants soon became so great, and was withal so persistent, that propagators were often compelled to resort to the use of weak and imperfectly ripened wood for the production of plants, a process that could not but tell upon the health and hardiness of the plants so produced, and which beyond doubt contributed greatly to maintain in the minds of planters a doubt as to the ultimate success of the variety.

In spite of all these obstacles, however, it has steadily risen in the popular favor until it may truly be said of the Delaware among grapes as has long been said of the Seckel among pears: it is the standard by which the real excellence of other varieties is estimated.

The following description is from Downing's Revised Work on Fruits:

"The precise origin of this grape is not known. It is moderately vigorous in growth, with short-jointed wood, quite hardy, requires rich soil, open and well drained, to produce the finest fruit. One of our most, if not the most valuable sorts for general cultivation. Very productive. Bunch, small, very compact, and generally shouldered. Skin thin, of a beautiful light red, very translucent. It is without hardness or acidity in its pulp, exceedingly sweet, but sprightly, vinous, and aromatic. The Delaware ripens in our climate from the first to the middle of September."

ALLEN'S HYBRID.

Is a grape originated by J. Fisk Allen, of Salem, Mass. The peculiarities of both foliage and fruit are such as strongly to indicate that this is really what its name implies, a hybrid, bred between the native and the European grapes. This is, however, strongly doubted by many eminent pomologists, and indeed there are not wanting those who allege stoutly that such hybridization is impossible. In bringing this fruit to the notice of the Massachusetts Horticultural Society, during the year previous to the month of March, 1855, Mr. Allen gives a very minute and interesting history of the steps taken to insure success in the process of hybridization. It is understood that Mr. Allen's operations for this purpose commenced as far back as the winter of 1843 and 1844, and that the variety under consideration first fruited in 1854. We extract from Mr. Allen's letter as follows:

"Being aware of the incredulity of many in the certainty of the origin of a

seedling, particularly when it presented a great change from the parent, every means were taken to make the case certain. The parent, an Isabella, was planted in a house occupied with peaches and nectarines. To be sure that neither bees nor other external cause could effect the impregnation and thus defeat the object, the vine was forced in January, and blossomed before vegetation commenced in the open air. Previous to the time of blossoming, the buds were thinned so as to leave only one-fourth of the strongest and best-placed ones. As they expanded they were constantly watched, and the anthers at once cut away with sharp scissors. The pollen of "Chasselas," "Black Prince," and "Black Hamburgh" was obtained, mixed together in a box, and applied with a soft brush. When the impregnation took effect, the embryo swelled at once; when otherwise, it remained as it was. Thus I was assured that each seed obtained must produce a hybrid. When the fruit ripened the seeds were collected and planted in soil which I felt certain could not have any other seeds of grapes sown accidentally. The young vines have always been under my care. The seedlings were exposed to the winter after they were somewhat grown, by which means the more tender ones were killed out."

Of the seedlings thus grown the only one that Mr. Allen seems to have considered worthy of being offered to the public was the subject of this sketch. Of this an outline and description was given in the Magazine of Horticulture for 1860, at pages 70 and 71. The description we subjoin:

"Bunches medium size, about six inches long and four and a-half broad, neither compact nor loose, slightly shouldered. Berries quite round, medium size, about three-quarters of an inch in diameter, frequently depressed at the end. Skin very thin, pale green, occasionally rose colored in the sun, semi-transparent, with a thin pale bloom. Flesh very juicy, resembling the Chasselas. Flavor sweet, rich, vinous and brisk, with a delicate aroma. Seeds, one to three. Vine moderately vigorous, making strong wood when well established. Leaves rather large, light green, not very thick, slightly three-lobed, nearly smooth beneath. Intermediate between the foreign and native grape, and showing plainly its hybrid parentage. The young shoots are covered with white down, very like the Isabella, which disappear as the leaves expand."

This grape was discussed at the session of the American Pomological Society, held at Philadelphia in 1860, and also at the next meeting, held at Boston in 1862, in both which cases it was commended very highly.

The chief difficulty in the way of the placing of this grape at the head of our list, both with respect to quality and profit, will be found in its great liability to the attacks of mildew, a liability which, from its alleged parentage, we might very naturally anticipate. It is, however, so exceedingly fine when grown free from this casualty, that no devotee of this fruit can afford to be without it, while a favorable soil and exposure, possibly with an occasional sulphuration, will, except possibly in unfavorable seasons, usually secure a crop of delicious fruit. It requires thorough pruning to prevent overbearing, and should be protected in winter in the climate of Michigan, as in my estimation, should every other variety. It ripens early in September.

THE REBECCA GRAPE

Was introduced at the meeting of the American Pomological Society held at Rochester, N. Y., in September, 1856, by Wm. Brookbanks, of the city of Hud-

son, N. Y., and an outline, together with a report of the Committee on Native Fruits appears in its transactions for that year, at page 201:

"The Rebecca originated in the garden of Mr. E. M. Peake, Hudson, N. Y., about eight years ago. Mr. Peake's garden is in one of the thickly settled streets of the city, and nearly the usual size of a lot, perhaps one hundred by one hundred and fifty feet deep. Between the house and the street there is a small flower garden. It was here that the original vine grew. Mrs. Peake was about making some alterations in her flower beds, and this vine being in her way, her gardener advised her to dig it up, as it was only 'an old wild grape.' But disliking to destroy it, she removed it with her own hands, and planted it very carelessly in the garden back of the house, in a very poor and cold clay soil. Here the vine made slow progress, but continued to increase in size until the third or fourth year, when it produced a few clusters of small white grapes. These appeared to possess so much merit, and were so much better than had been expected, that pains were taken to feed and nourish it, and prune it into shape, and it soon repaid all the labor bestowed upon it. It grew vigorously, making shoots ten or fifteen feet long, and bore abundant crops of the most delicious grapes, until at the present time it has reached the top of the house, and covers a trellis, ten feet wide and twenty-five feet high, loaded with fruit.

"Bunches medium size, about six inches long, very compact, without shoulders. Berries medium size, obovate, about three-quarters of an inch in diameter. Skin thin, greenish white, becoming of a pale amber color at full maturity, covered with a thin white bloom. Flesh very juicy, soft and melting, and free from pulp. Flavor rich, sugary, vinous, and brisk, with a peculiar musky and luscious aroma, distinct from any other grape. Seeds small, two to four in each berry. Leaves scarcely of medium size, about seven inches long and seven in width, very deeply lobed, and coarsely and sharply serrated; upper surface light green, slightly rough; under surface covered with a thin whitish down; nerves prominent; petioles rather slender."

(Signed)

W. D. BRINCKLE, *Chairman.*

It was shown the same year at the annual exhibition of the Massachusetts Horticultural Society, and was noticed in the next issue of the *Magazine of Horticulture*, with the following rather faint praise: "It is a white grape, about the size of the Diana, and with bunches about as large; in flavor fully equal to that superb grape." It is again noticed, outlined and described in the November issue of the same volume, the notice closing with the following very high commendation, in which all will doubtless concur, if it is to be confined strictly to the quality of the fruit: "The addition of a few more grapes of such excellence as the Rebecca, would nearly or quite obviate the necessity of constructing houses for the growth of the foreign kinds, for we consider it far superior to the Sweetwater, so long the standard of a fine variety. To our taste there are few varieties of foreign grapes we should prefer to the Rebecca."

In the *Horticulturist* for 1857 the editor writes, after having enjoyed a fine opportunity of comparing Delaware and Rebecca: "Good as the Delaware is, the Rebecca is very superior, and we are free to say it is, in our opinion, the best out-of-door grape we have."

The Rebecca in our climate will usually ripen from the 10th to the 20th of September.

This fruit bears some very decided evidence of being a hybrid between the native fox grape of the east and a foreign variety. It is not a strong grower,

being even less so than the Delaware, while its delicate foliage seems unable to resist the vicissitudes of our climate in unfavorable seasons. It is usually a poor setter of fruit, so that the bunches are usually very scattering, and withal seldom perfect. Still, its eminent quality will, in the absence of anything more reliable, render it indispensable to the amateur.

THE AGAWAM GRAPE.

Mr. Edward S. Rogers of Salem has the merit of having taken an entirely new departure respecting the proper principles underlying the theory of grape hybridization, a departure which, whatever may be thought of its correctness, has certainly led him to the creation of an aggregation of most wonderful results.

Mr. Rogers selected as the female parent through which to work out the problem to which he devoted himself, what is known as the Mammoth Globe grape, one of the largest of the wild fox grapes of New England; the blossoms of this were fertilized with pollen of the Chasselas and Black Hamburg. From the fruit of those hybridizations he produced a crop of seedlings generally of great vigor and hardiness, producing some black, and others red or white fruit, generally of large size, and in fine bunches, many of them ripening quite early. Although these seedlings, in common with nearly all new varieties of fruits, were at first somewhat overpraised, and hence have not always realized the expectations of planters, it is still a matter of surprise that so large a number of seedlings should have been produced, of so generally even a quality, and withal, of so high a degree of excellence, from a parent of such utterly worthless quality, so far as fruit is concerned.

Among these hybrids (the propriety of this designation being in question), is the subject of this notice; it having been extensively disseminated by Mr. Rogers and dealers generally, before naming as Rogers' No. 15.

When these varieties fruited they were shown on the tables of the Massachusetts Horticultural Society, and they seem to have been first noticed through the press in the report of the fruit committee of that Society for the year 1857. They were also discussed, and No. 15 especially commended at the meeting of the American Pomological Society held at Philadelphia, in 1860, and again at its meeting at Boston in 1862.

After these varieties had been for several years in the hands of planters, Mr. Rogers was induced to assign names to the more deserving varieties; the one under consideration, sent out as No. 15, received the name Agawam, as before stated, about the year 1867 or 1868.

This variety, in common with many of this lot of seedlings, seems to cling with tenacity to one of the characteristic peculiarities of its wild parent. As the vine acquires age it sets its bunches very profusely, and unless checked by careful summer pruning or thinning, the bunches become very small and imperfect. This objection, together with a lack of superior quality in the fruit seem to me to clearly warrant the remark at one time made by Mr. Charles Downing, that all the Rogers grapes would have to be laid aside, as being hardly up to the demands of the age, so far as quality is concerned. Still this grape is possessed of a very firm, tough skin, and also matures at so opportune a season as to specially adapt it to use as a keeping grape, and it is for such purpose that it is assigned a place on the Society's list. It will ripen in this climate a few days later than the Concord.

The following are the additional grapes described by Mr. Lyon:

IVES' SEEDLING.

This grape originated in Cincinnati, in the city lot of H. Ives, and was brought to notice in 1858 by the Fruit Committee of Ohio, who gave an objectionable qualification, saying it showed a tendency to "run back" toward the fox grape; and that this was no recommendation with those among whom the "Charter Oaks," "Northern Muscadines" and the whole fox family are in disfavor, though praised by some "wise men of the East." It is deemed too late as an early grape, but its quality and the weight of its expressed juice is worthy of mention.

THE CREVELLING

originated with a family of that name, 140 miles north of Philadelphia, and was exhibited at New York in 1858. It was noticed and figured in the Horticulturist in 1860.

THE ADIRONDAC

originated a few steps from Lake Champlain, in Port Henry, Essex county, New York. A wild grape vine, quite large, was grubbed up by J. G. Wetherbee to make room for an addition to his garden, he supposing it to be a common wild vine. A year or two after this a small grape vine made its appearance near the spot, and as it grew vigorously he gave it a trellis and training. It commenced to bear in 1858, ripening previous to the 10th of September, before the Isabella had commenced coloring; two weeks before the ripening of the Northern Muscadine, and three weeks before the Delaware. It has been very largely disseminated.

THE IONA.

This grape originated with C. W. Grant, of Iona, on an island in the Hudson River, not far from Peekskill, and was editorially noticed in the Horticulturist for October, 1863. It was grown from the seed of the Diana, or, as some say, from the Catawba, and selected from several thousand seedlings on account of its hardiness, earliness and general good qualities. It was delayed for several years in its introduction to the public by the destruction of the young scions.

THE ISRAELLA

is also a seedling originated by Dr. Grant, and was introduced to the public contemporaneously with the Iona. It was named after Dr. Grant's lady by the Horticulturist in October, 1863.

THE EUMELAN

is a chance seedling which sprung up at Fishkill, New York, and by some believed to be a cross between the Clinton and Isabella. It was secured and propagated by Dr. Grant, and introduced to the public about 1868. They begin to color about the middle of August and are good for eating by the 10th of September.

THE CROTON,

the last upon the list, originated with Dr. S. Underhill, of Croton Point, New York, and first exhibited at the New York State Grape Growers' Association at its first annual exhibition in 1868. It is a white grape, and was raised, with a number of others, from seed produced by fertilizing the blossom of the Delaware with pollen from the Chasselas de Fontainbleau in the open vineyard.

APPLES.

WHAT AN OLD ORCHARDIST KNOWS ABOUT APPLES.

AN ESSAY PREPARED AND READ BY MR. JEREMIAH BROWN, OF BATTLE CREEK, AT THE FEBRUARY MEETING OF THE MICHIGAN STATE POMOLOGICAL SOCIETY, 1873.

[The original was destroyed by fire which swept the Michigan Farmer in April, but at our request Mr. Brown has kindly re-written it.]

MR. PRESIDENT:—The valley of the Hudson River, N. Y., has given us a great many of the choicest American apples; the soil and climate seem to be peculiarly adapted to the perfecting of this valuable fruit.

I propose now to give you some of my experience obtained in the last twenty-five years in testing a great variety of apples:

When I first came to Michigan, I had a strong desire to try all that the best authorities then considered really good, either for family use or market purposes,—of course it did not take long to find out I had too great a variety for profit. And now, were I to start again, I would be satisfied with less than one-half the varieties I commenced with.

I shall purposely omit to speak of a great many set down in the “books” as good, very good, and best, simply because they have not succeeded with me, and that others are better calculated to supply our wants.

I shall speak of the different varieties in the order in which they ripen, with this exception, that the sweet will come in between the fall and winter varieties.

Prince's Early Harvest, the first to ripen, is indispensable for family use, and also for the market; it is too well known to need any recommendation, — it is, however, very liable to scab; the tree is hardy and productive.

The Red Astrachan is the most profitable apple we grow; it is a little too tart to suit the taste of most persons, but it always commands the highest price in market, and for many culinary purposes it is indispensable.

The Early Joe is too small for a market apple, and when grafted on the stock that suits it, and grown in the right soil (a poor gravelly loam), then it is the best apple I have ever eaten in Michigan.

This, I am aware, is higher praise than either Downing, Dr. Warder, or J. J. Thomas have given it, but I claim that neither of these high authorities have ever seen it in perfection; out of six trees on my grounds, only one produces fruit worthy so high commendation. All the other trees grow in soil better suited to the apple; they produce larger and handsomer fruit but much inferior in quality.

Let me remark here that I have two Sweet Bough trees standing within 16

feet of each other, both grafted at the same time, with grafts taken from one tree; the soil being the same in every particular as far as I can discover, and yet, one of these trees always bears larger, handsomer, and finer flavored fruit than the other; therefore, I am fully of the opinion that this difference is caused by the difference in the stock grafted on, and I cannot but hope that science will yet discover the stock best suited to the particular varieties of fruits.

The Primate, next to the best Early Joe, is the best desert apple I have yet seen; it is too tender for shipping, but for family use and a home market, it may be classed first best. This apple was unknown to Downing at the time he issued his ninth edition of his great work, *Fruit and Fruit Trees of America*, in 1849. Neither was it mentioned by J. J. Thomas in his first edition of the *Fruit Culturist*, published in 1850; and even now but few persons are acquainted with it.

The tree is hardy when top-grafted, but a very slow grower, particularly so in the nursery row, and this accounts for its neglect by the nursery men. The tree bears regularly, and the fruit ripens for two months and over, which adds greatly to its value as a family apple.

Porter and Gravenstein are both very desirable fall varieties, and can hardly be dispensed with; trees hardy, good growers, and productive.

The Ohio Nonpareil is but little known in this State; I obtained my grafts nearly 20 years since, from the originator of it, a Mr. Myers, who then resided near Massillon, Ohio. The tree bears annual crops of large and beautiful fruit. Dr. Warder, who is well known as one of the best pomologists of the country, in speaking of this variety in his work on the apple, quotes from the *Western Horticultural Review* of 1853 as follows: "Compared with the best dessert apples of the season, such as Hawley, Fall Pippin, Fall Wine, Rambo and others, this variety was declared to be better than the best."

The Full Pippin is a splendid apple either for the dessert, kitchen, or market, but it is a shy bearer, and the tree is a little tender; yet with these faults it should be in every orchard; with care it will keep until January.

Fameuse.—This is a great favorite in our market and is a delightful dessert apple, but, unfortunately it scabs badly, and if the fruit is not thinned out there will be a great many apples only fit for cider, or for stock.

Norton's Melon.—Medium in size to large, quality very good, ripens from October to January, tree bears large crops every alternate year, hardy and a good grower; it is a desirable variety.

Sweet Bough is indispensable for family use and a home market; the tree is a little tender and needs a loamy soil.

Golden Sweet with some is a favorite for table use, and as it is a great bearer it is profitable to grow for stock, particularly for milch cows; it is too tender for shipping, as the slightest bruise will be perceptible in a few hours after it is gathered.

The Jersey Sweet is a crisp, juicy, very sweet, high flavored apple; as a variety of the sweet apples it is very desirable; tree hardy and a great bearer.

The Rhode Island Greening is too well known and too great a favorite to need a recommendation from me; the tree is a little tender, and should be top-grafted on the Northern Spy.

Jonathan, a seedling of the Esopus Spitzenberg, but much better, may be classed as the best apple of its season; in market where it is known it always brings the highest price; the tree is hardy and a great bearer.

The Wagener is a spicy, delicate flavored apple, and is very desirable for family use or market; the tree is rather tender, bears early, but a slow grower.

The Baldwin, next to the Red Astrachan, is the most profitable for market; just now it is the most popular of all the winter varieties, but I claim that it is not deservedly so, as there are many other varieties that are much better; the public taste is running largely in favor of large, showy, red apples.

Red Canada, for family use or market, is very valuable; the tree is hardy and productive, and the fruit is always fair and remarkably uniform in size.

The Swaar, on Paradise stock, and on a clay loam, is very desirable, but on a dry, rather sandy soil, it is small and scabs, and some seasons decays on the tree; as a dessert apple it has few equals.

The Roxbury and Golden Russet are both desirable as late keepers; there are few, if any, as good for baking as the Russets, and on that account alone they are valuable.

The Northern Spy, for market and culinary purposes, may be highly recommended; the tree is hardy and very productive; it needs annual pruning; comes into bearing in from 10 to 12 years.

Newtown Pippins—green and yellow—are both great favorites in the Paris and London markets, and also in the Eastern States; this high reputation is well deserved; they are late keepers; a clay loam suits them best, and therefore a light sandy soil should always be avoided.

I am decidedly of the opinion that the apple should be gathered earlier than it usually is. I have always found that those gathered first keep the best, and we all know that the longer the picking is delayed the greater is the loss by dropping.

I will here allude to the Michigan style of packing apples and its consequences:

It is a well-known fact that this State produces as good if not better apples than any State in the Union, and it is equally well-known to all intelligent fruit-growers and dealers that, in the Chicago and Detroit markets, Ohio and New York apples sell for 25 cents a barrel more than Michigan apples; now, what is the cause of this difference? I answer, it is owing entirely to the difference in putting them up, and therefore if we wish to compete with these States, we must learn to reject all small and damaged fruit, and by so doing we shall not only increase our profits, but amend our morals too.

I would advise every farmer to put his name on every barrel of apples he sends to market, and when the consumer learns that his brand can always be relied upon, he will be sure of getting the highest price for good choice fruit. I intended to say something more of the importance of careful handling and packing of apples; but I feel that I have used all the time I am fairly entitled to at this time.

THE ELEVEN SUMMER APPLES.

BY J. P. THOMPSON.

1. Market List—Strictly for market purposes, and giving, as far as practicable, a succession through the season.

2. Family List—For family or culinary purposes, with a possible surplus for market, and giving a succession.

3. Amateur List—For amateur purposes, consisting strictly of dessert varieties, selected for high qualities, with ample varieties and succession.

APPLES—SUMMER VARIETIES.

Market Varieties—Early Harvest, Red Astrachan, Duchess of Oldenburgh (second quality), Maiden's Blush.

Family List—Early Harvest, Red Astrachan, Primate, Large Yellow Bough, Maiden's Blush.

Amateur List—Early Harvest, Carolina Red June (for the Southwest), Sine Qua Non, Early Strawberry, Early Joe, Large Yellow Bough, Summer Rose (in certain localities).

The above constitute the summer varieties of apples recommended by the Society at its January session at Lansing, for market, for the family, and for amateur purposes. Let us review them briefly:

THE EARLY HARVEST.

This is the most popular early apple extant. The boys and the men who work in the wheat harvest know and welcome it about the first of July, when it begins to ripen. At that season the Early Harvest tree is the popular and favorite resort of all who relish the rich, sprightly, sub-acid flavor of its delicate fruit. It is of American origin, well known over a large extent of country, east and west, for its beauty and productiveness, and for its excellent qualities for dessert and cooking. Money can be made with it in the market. Downing says it should be included in the smallest list. Pains should be taken to give it rich cultivation, and to thin the fruit, thereby obtaining large-sized specimens, which bring a good price in the city markets. The flesh is tender, white, and juicy, and of refreshing flavor. The skin is smooth, of a bright straw color when fully ripe. Coxé, one of the earliest American writers on this subject, describes it under the name of the Early French Reinette. It is known as the July Pippin, Yellow Harvest, Tart Bough, Prince's Harvest. Its present name, Early Harvest, is so appropriate that it is likely to stick. The round form and spreading upright character of the tree is so well known that we omit minute description. It is a moderate grower. This fruit has a place in the amateur, family, and market lists. There was no other place in which to put it.

THE RED ASTRACHAN.

Not many apples of European origin flourished in perfection on our western continent, though occasionally there comes from the north of Europe an apple with cosmopolitan characteristics. Thus the pale sister, the Early Harvest, has a Swedish brother of true sanguine and Scandinavian complexion, of such vigorous habit that by general acclamation he has been naturalized and admitted to the great union list of orchard fruits. No list is complete without the Red Astrachan, which is found in all the States of the temperate zone. It came from Sweden to England in 1816, and in America bears more abundantly than in its native clime. Downing endorses it in emphatic language, and he styles it a fruit of "extraordinary beauty." It bears abundantly, and its singular richness of color is heightened by an exquisite bloom on its surface, like that of a plum. This is not a first-class dessert fruit, though its beautiful appearance will adorn any table. Its chief value is in its prime cooking qualities.

The good housewife who delights in an early apple, finds in the crisp, white flesh, and the juicy acid flavor of this variety her perfection of fruits for late summer and early autumn pies and sauces. Its cooking qualities render it profitable for market, and this is greatly enhanced by its very handsome,

showy, and fine appearance. For the market it should be picked a few days before it is fully matured. More pains should be taken to obtain large fair specimens which is done by thinning the fruit. The tree is naturally very vigorous, hardy, and productive, and with ordinary care will bring an annual crop.

THE MAIDEN'S BLUSH.

This is another remarkably beautiful apple, and it never fails to take the market by storm. It is not what may be called a rich fruit, though it is fair, tender, and lovely. The rose tint on its pale, yellow cheek, has all the freshness of the true maiden's blush. It is a Lady's Apple revised and enlarged. The flesh is white, sprightly, tender, pleasant. New Jersey, where it originated, may well be proud of this fruit, and Coxé has the honor of first describing it. The west is its favorite home, where it flourishes in all its perfection. The tree is handsome, rapid growing, with spreading head, and bears large crops. The Blush is a better dessert fruit than the Red Astrachan or Duchess, and as we have said, very profitable for the market. It was on exhibition at the January meeting at Lansing. It begins to ripen the latter part of August, and is good until the first of November. It is more strictly a fall variety, though it commences ripening in summer.

THE DUTCHESS OF OLDENBURGH.

From the north of Europe comes another hardy, vigorous, productive fruit, and it has all the tough endurance which we connect with its Russian origin. While no one would select it for dessert, it has few successful rivals as a profitable market sort. It bears carriage better than the Early Harvest or Red Astrachan. It commands a ready sale as a cooking apple. It will stand such Russian winters as that of 1872-73, and for this reason is popular in northwest sections. It is strictly a market variety, and when well packed, can be shipped to distant points. Its appearance is not so striking as the Red Astrachan, nevertheless it is not a plain apple, but its skin is finely washed and streaked with red on a yellow ground. The tree needs little nursing or pruning. There are those who will dispute its classification among the summer market varieties. It has generally been placed in the autumn list, though it ripens late in August, and it may be said that the time of ripening is about the 1st of September. It follows the Red Astrachan. Its faint, blue bloom is characteristic of its Russian origin. Its juicy, sub-acid flesh renders it a great favorite in the pastry rooms of all well kept hotels.

These are the four summer market varieties recommended by the Society. Four better summer market varieties cannot be found. The trees of all are vigorous, hardy, healthy, productive, and where you have the trees you are sure of having apples.

FOR FAMILY USE

the same three varieties, the Early Harvest, the Red Astrachan, and the Maiden's Blush, are recommended. There are, also, two varieties in addition: the large Yellow Bough, and the Primate.

THE LARGE YELLOW BOUGH.

This variety, commonly known as the Sweet Bough, was exhibited at Lansing in January, by Mr. Gilbert, of Clinton county. It is a harvest apple, and sometimes called Sweet Harvest. It ripens the middle of July, and its tender flesh and excellent sweet flavor are universally known and acknowledged. A sweet apple, good for baking, fit for the table, is a necessity in every family summer

list. This place is filled by the Large Yellow Bough. Though too sweet for pies or sauces, it is next to the Early Harvest for desserts, and is the favorite of all the sweet-loving children. The tree is an annual bearer.

THE PRIMATE.

This valuable and delicious apple should have a place in every family orchard. It is the queen of summer dessert. It stretches over the last weeks of summer and late in the autumn; yes, from August to October. Strange that so valuable a fruit should have no historical origin. Downing says that the *true* history of the origin of the Primate has not yet been written. It is a sort of Gipseey, growing in various States, under different and provincial names. Some of these names are suggestive: Rough and Ready, North American Best, July apple; these and other names are expressive of its season, value, and the strong, hardy and stocky growth of the trees. Early in the season it is a light green, and later a light yellow, not unfrequently tinged with a slight blush. The flesh is fine grained, very juicy, very agreeable. You will always remember the Primate. Its memory lingers like a thing of beauty. The invalid of autumn will be apt to recollect its refreshing power. It is well named, and is among the first of dessert fruits.

THE AMATEUR LIST.

We now come to the amateur summer list. Here we shall only expect the highest quality of dessert fruit, something fit to eat. Now we cater for the delectation of the palate. In this list we have several varieties, two of which, the Early Harvest and the large Yellow Bough, we have mentioned.

THE CAROLINA RED JUNE.

The Carolina Red June is said to be a Southern fruit. Carolina shakes hands with Michigan in this handsome fruit. A southern apple does not always flourish in northern soils, but the Red June is an exception. It is the most valuable early apple in northern Illinois and adjacent region, and in southwest Michigan, we find this apple at home. Barry mentions the fact that he has seen good specimens which came from Kalamazoo. It is about as large as the Summer Queen, or medium. Very red on the outside, and very white in the inside; the flesh is very tender, juicy, sub-acid, with a sprightly agreeable flavor. It continues to ripen for four weeks, a valuable quality in a summer fruit. The tree is a fine erect grower, hardy, bears young and abundantly.

SINE QUA NON.

If Mr. William Prince, of Long Island, had accomplished no other good work but originate this variety, his name would certainly be cherished by his grateful countrymen. Unlike most of the above varieties, this tree is a slender, slow grower, but the quality of this fruit is of exquisite tenderness and flavor. It ripens two weeks after the Early Harvest. The flesh is a greenish white, fine grained, and moderately juicy. The fruit is round, inclined to be conical, medium, smooth surface, of a pale greenish yellow. Strictly an amateur fruit.

EARLY STRAWBERRY.

This is another beautiful amateur variety for the orchard and garden. Though small in size it is one of the most popular summer sorts in the New York market, and originated in that neighborhood. An esteemed author, Mr. Manning, of Salem, describes it as the American Red Juneating. Its surface is smooth, splashed with bright and dark red, on a yellowish white ground.

Flesh is white, and is distinguished by being slightly tinged with red near the skin. In flavor it is brisk, sprightly, and pleasant.

THE EARLY JOE.

This is another beautiful and delicious small sized, deep red amateur apple. It hails from the orchard of Heman Chaplin, East Bloomfield, Ontario County, New York, where the Northern Spy and Norton's Melon originated. The tree will bear high culture, it being of slow growth, though very productive when well fed. The flesh is tender, juicy, with a very agreeable vinous flavor. It is marked "best" by all the authorities, and rules from the middle of August to the middle of September.

THE SUMMER ROSE.

A small, exquisite, pretty apple, highly esteemed for dessert. It is highly commended by amateurs in Clinton and Ingham counties. The flesh is tender, abounding with sprightly juice. The fruit has a most beautiful waxen appearance: pale yellow with a red cheek. It is the summer rose among apples. Tree rather a slow grower but a good bearer. Begins to ripen with the wheat harvest and continues a month, and is better in quality for the table than Earley Harvest. An especial favorite with the ladies.

It will be noticed that all the amateur apples are strictly of that class. Of exquisite flavor with high dessert qualities, and from their small size generally thought to be unprofitable for the market; nevertheless we have known the Early Joe, the Early Strawberry, the Early Harvest, and the Carolina Red June, to sell readily in market for one dollar per bushel. These eleven summer varieties are good, with few exceptions, in all sections of Michigan. As a general thing we have too many summer sorts of fruit, but these cover all the needs of the State.

THE PRIMATE APPLE.

READ AT THE SOCIETY'S MEETING AT BATTLE CREEK, FEBRUARY 26, 1873.

In the Michigan Farmer of the 20th inst. I noticed some comments upon each of the eleven varieties of summer apples recommended at Lansing, at the January meeting of this Association.

In speaking of the Primate apple, the writer says: "Strange that so valuable a fruit should have no historical origin. It is a sort of Gipsy, growing in various States, under different and provincial names. Some of these names are suggestive: Rough and Ready, North American Best, July apple; these and other names are expressive of its season, value, and the strong, hardy, and stocky growth of the tree," &c.

Upon reading this, it occurred to me that some years since I tried to trace this fruit to its origin. Thinking it might be interesting to members of this Association to know that a Michigan man had something to do with introducing this valuable apple to the notice of orchardists, I will, if in order, read to you some correspondence had with regard to it, and published in Hovey's Magazine of Horticulture some years since.

In the volume for 1850 I find the following letter from Charles P. Cowles, Esq., of Syracuse, N. Y., dated August, 1850, and addressed to Mr. Hovey:

"DEAR SIR,—As you are at the head of all Horticultural publications in New England, I thought you might wish to see the fruit of a new apple grown in this vicinity. Then, if you thought it worthy of circulation through your interesting Monthly Magazine, I would give you a few notes with a description, that you may dispose of them as you like.

"As it is not known in this place nor State by the best judges, I safely think it is a seedling. I found a few trees in the Onondaga county, in a town of same name, which had been circulated by grafts; but nothing further could be traced of its origin. It is much more esteemed than the Early Harvest, with which it begins to ripen.

"The specimens sent are of medium size, owing to its great productiveness; of the quality and beauty you may judge for yourself. I have taken a sketch and a few rough notes, which are at your disposal.

"*Fruit* above medium size, oblong, largest at the base, gradually narrowing to the eye, distinctly ribbed; *Color* green, when fully ripe of a beautiful straw color, tinged with a bright blush on the sunny side; *Flesh* tender and excellent, fine grained, somewhat melting, of yellowish color, abundant in juice of an agreeable sub-acid flavor; *Stalk* large and stout, inclining to one side, from one to one and a-half inches in length, deeply inserted in an irregular cavity; *Eye* small and closed, segments reflexed, distinctly plaited. An abundant bearer, with the remarkably good peculiarity of ripening a long time as wanted for use.

"It commences the first of August and lasts till into September. Tree of vigorous growth, making a fine head. Wood of light brown color, resembling the Porter, of stocky growth, like the Gravenstein in the nursery. Leaves glabrous above, quite downy beneath. Owing to its great productiveness it makes but little annual growth. The ends of the twigs are very stout and blunt, and of nearly the same size at the end as at the joint. I propose to call it 'Rough and Ready' from the fact of its being first tested during that campaign; and as it is a familiar one throughout the country, I have sent specimens to numerous amateurs with grafts to test its qualities in different localities with this name."

In the same Magazine, page 507, 1851, I find the following letter from Mr. A. Fahnestock:

"DEAR SIR,—As we failed to get the Primate apple at Geneva we procured them at Benton, where the original and first grafting was done by Mr. Lyman Tubbs, the Eastern grafter, who brought the scions from the East with him, and grafted them on a farm which he purchased at Benton. We procured the specimens we now send you from these trees. They are called by him the Harvest apple. They were disseminated afterwards around Benton, Geneva, Brighton, near Rochester, and in Onondaga County, in which last place Mr. Cowles saw the apple and concluded it was a seedling.

"The oldest trees near Benton are from thirty to forty years of age, and are the largest of all in the county. Mr. Lyman Tubbs now lives in Michigan, and as I am informed, in Kalamazoo city.

"Mr. Peter York, at Benton Centre, when his trees came into bearing, called it the 'Primate apple,' as it was about the first and best, as he has so informed us. Mr. Powers, near Geneva, also had his trees grafted, and when they came into bearing and grafts taken from his trees, they were called the 'Powers apple.' These apples have been cultivated by Mr. York upwards of thirty years, and by Mr. Parsons upwards of twenty years, and by Deacon Bronson

twenty years. These apples commence ripening with the Early Harvest, and last for two or three months; they are more mild and pleasant and of larger size. The tree is stocky, upright, with a broad, deep green, heavy leaf.

"Perhaps from the above you may be able to find out what the apple is and the true name. In the meantime I would suggest that it be called the Harvest or Primate apple; perhaps the latter name would be more appropriate, as the former might be confounded with the Early Harvest, and it is generally known by the name of 'Primate.'

(Signed),

"A. FAHNESTOCK,

"Syracuse Nursery.

"SYRACUSE, N. Y., Sept. 2, 1851."

In the Magazine of Horticulture for 1852, page 115, I find the following:

"THE PRIMATE APPLE.—Some time since we gave some account of the history of this apple, by Mr. A. Fahnestock, of Syracuse, New York. Our correspondent, J. C. Holmes, of Michigan, having noticed Mr. Fahnestock's communication, in which he traced the apple back to some scions engrafted by Mr. Lyman Tubbs, now of Michigan, he requested his friend Mr. L. H. Trask, of Kalamazoo, to find Mr. Tubbs, and inquire of him where he obtained the scions from, and whether the tree was a seedling, &c. A reply was received from Mr. Trask, and forwarded to us by Mr. Holmes."

The substance of his letter is as follows:

"After so long a time I have been able to see Mr. Lyman Tubbs and procured of him such information as I could, in relation to the Primate apple.

"Mr. Tubbs says he is *the* man; that he always called it the July apple, and that is the name he had with the scions, which he had from New Jersey while he lived in Benton. He obtained the scions through some neighbors of his in Benton, from an acquaintance of theirs by the name of Bush, who lived in New Jersey; but he does not know in what town or county Mr. Bush resided, and the friends of Mr. Bush who lived in Benton are all dead, or gone away, he does not know where. At this time Mr. Tubbs thinks that this Mr. Bush, of New Jersey, died some three or four years ago.

"This is about all the information I could get from the old gentleman; except, he thinks that the scions he obtained from New Jersey were from a grafted tree, and not from a seedling. Mr. Tubbs also says there are some trees grafted with the apple on the farm he used to own near Galesburg, in this county, where he thinks grafts may be obtained."

Yours truly,

L. H. TRASK.

KALAMAZOO, Mich., January, 1852.

Mr. Hovey thinks this was a seedling not known beyond the place of its nativity until grafted by Mr. Tubbs.

J. C. HOLMES.

BATTLE CREEK, February 26, 1873.

THE CODLING MOTH.

AN ESSAY READ BEFORE THE VOLINIA FARMERS' CLUB, BY B. HATHAWAY, OF LITTLE PRAIRIE RONDE, CASS COUNTY, MICH.

Believing that the time is at hand when the fruit-growers of this State will be compelled to investigate the habits of the insect known as the Codling Moth, or in its larval state as the apple worm, I propose to occupy a little time in detailing the results of my observations and experiments with this one most injurious of our noxious insects.

There are but few men who have any practical knowledge of this moth, or that know the worm that is the real destructive agent, or can tell to what extent their orchards are infested. The past season has not been so favorable for the multiplication of this insect, I believe, as the previous one, at least in this section, though a part of my orchards were badly infested in spite of my efforts to kill the worms, so much so that I could not save one-fourth of my Rhode Island Greening apples, a variety that seems particularly subject to its depredations.

THE MOTH.

This moth is one of the smallest of the miller tribe. It is remarkably lively in its movements, though but seldom seen even where most abundant, but may be recognized by the gold or bronze on its wings when once it is found. The moths are all shy insects, and this is the most shy of them all; besides, it flies only in the evening or night.

It begins its depredations at the time the apple blossoms fall, or a few days later, by depositing its eggs in the calyx or blossom, of the newly formed fruit. And so far all efforts directed to the destruction of this insect in its mature state,—that of the full grown moth,—have been of little or no avail. It is claimed that it does not feed, which is the habit, naturalists hold, I believe, of all this class in their mature state, and cannot, therefore, be poisoned. It hides so cunningly that it cannot be found in the daytime, nor is it attracted by light, as some have supposed, in the night. Consequently our only successful method of subjugating this pest must be employed against it in its worm or larval state.

THE WORM.

The eggs that are deposited in the calyx of the young fruit soon hatch, and the worms burrow at once into the heart of the apple, feeding upon the pulp until they are full grown, which requires, according to the observations of those naturalists who have given it attention, from 32 to 36 days. When they have reached the proper state they come out of the apple, and at once seek a

secure place in which to go through their transformation. When they have found one they spin for themselves a cocoon, as it is called, and change to a chrysalis, and in about two weeks—the time being longer or shorter, according to the season—they come out full-grown millers, and are ready to lay a new crop of eggs. The time required to effect the change from the worm to the mature insect, though put down by some writers at from 14 to 16 days, I find greatly to vary. During the very warm weather I found that some had made the change, and had escaped in less than the time named, while later in the season the transformation was effected more slowly; indeed, many of the worms of the last brood do not go through their change until spring. I found abundance of these worms not yet changed into chrysalids just before the winter set in, while assorting my apples preparatory to putting them in the cellar.

THE VARIOUS METHODS EMPLOYED FOR THEIR EXTERMINATION.

It is in the habit or instinct of these worms to seek a secure place in which to go through the transformation above noted, that we find the only available means for their destruction, and all the methods that have been devised that have been at all successful, have had in view the entrapping of the worms.

If the principle is correct,—which few, if any, will deny,—it only remains to choose the form or kind of trap that shall prove to be the most economical of cost and effective in operation. The straw and hay bands have been used to some extent, and found to be an advantage no doubt, though a rather primitive device. Later, the cloth bands have been found a more efficient aid, and some, perhaps, are so well pleased as not to desire to look further. There is also a patented device now on trial by orchardists, gotten up by D. B. Wier, of Illinois, and it is claimed to be quite effective, though it is questionable if it is as valuable as its friends claim, or if it is as cheap or available as other devices that exacts no royalty for the privilege of their use.

These traps of Mr. Wier's consist of two or more pieces of shingle or thin boards, fastened together at the middle, and also to the tree by a nail or screw. They are fastened to the body of the tree, one or more to each, and also to the limbs when large.

You have, many of you, noticed that my apple trees—many of them—the past season have been enclosed by some sort of band, and have wondered what could be the possible use, and some of you have asked me the purpose of them. In order that you may form some idea of how effective these traps may be, I present those for your inspection that I have used, showing the marks of the worms and the manner of their housing up, so to speak, and you may form some idea of the number of these worms that may be destroyed in this way when I tell you that these bands yielded a crop every two weeks or so, after about the 10th of July, until cold weather, and that is was no uncommon thing after the second brood came out to kill 25 to 50 at one time to a tree, and often more.

You recognize these bands, no doubt, as the rims to the berry box that I have manufactured and used in my small-fruit business for many years.

It seemed to me only last winter, in discussing this subject of the codling moth, and the best means for its destruction, that I had in these rims a better and cheaper thing for the purpose than had been heretofore devised; and the wonder is not so much that it did not occur to me before, as that in the manufactory of great quantities of veneer, to supply the demand for cheap

berry-boxes all over the country, that some enterprising horticulturist has not long before conceived the idea that here was an abundant supply, and cheap, of a material altogether superior in points of cheapness, durability, and effectiveness, for the purpose of entrapping these worms to anything heretofore devised.

RULES FOR USING THESE BANDS.

They can be put upon the trees at any time in the winter, or early spring, whenever there is leisure to do it. But if not put on before, they must be in place from 32 to 36 days after the last blossoms have fallen, as it takes about that time for the worms to grow to maturity. The trees should be fully enclosed by the band. If one will not reach around, two or more can be used. Some of my trees require three. These bands of mine are only 17 to 18 inches long, so that one will only encircle a tree of some six inches in diameter.

This trap of Mr. Weir's that I show you, the inventor recommends that two or more be put on each tree. But with this sort of band, if the tree is enclosed, one is all-sufficient. I have found that I catch as many in one as in several on one tree. I believe that they are all caught that go up or down the tree if the band is properly put on.

After the season approaches for the worms to appear, it is well to watch the traps a little, and see when the first go in. This will be in this latitude from the 20th of June to the 1st of July. Then, when two weeks are passed after the first worms are found, the traps should all be taken off, the worms killed, and then replaced, and so every two weeks thereafter, until towards fall, when three weeks may intervene, as the transformation becomes slower. One point is very important—not to let them run too long. These bands make a very secure place for these worms, in which to go through their change, and unless we attend to killing them, we will help to multiply instead of destroy them. Even the birds will be debarred in a measure from doing the good they might, if the worms had to seek shelter—as without the bands they would—in the scales of the bark, and other uncertain hiding places. Though these feathered friends of the fruit-grower do not propose to be cheated out of their natural patrimony by the ingenuity of man, as you may see by the holes in these bands made by the striped woodpecker and the chickadee.

It may be adduced as an evidence of the value of birds to the fruit-grower, that in the older portions of the prairie regions of the west, as in Illinois, where orchards have long been planted, these insect depredators have been much more troublesome and destructive than in our own State, owing, no doubt, to the comparative small number of birds in those open countries; needing, as they do, the shelter of woods for safety, and the proper conditions for multiplication. This is no small argument in favor of shelter-belts around our farms and orchards, and should have much greater consideration with us than it does as yet.

I will suggest also that it may often be important to clean the trees, especially old trees, of moss and rough bark, so that the worms will fail to find a suitable place to spin up in, and go through their change, so they will be all the more sure to seek the trap, and I have no doubt but a wash of lime or lye, or both, would be a great assistance.

It must be borne in mind that the work of subduing this pest, if it is subdued at all, must be taken hold of by the fruit-growers as a body, and not by one or two in a neighborhood. I may use all energy and rid every worm that

is hatched on my own grounds, and the moths that are bred in my neighbor's orchard fly over to mine, and the second brood of worms—which do the principal damage—spoil my fruit in spite of my utmost care.

Of the immensity of the loss to the people of this State from this one insect, but few have any just conception. I believe there can be nothing more easy of demonstration than that this season, in many regions, if not generally, it would equal the amount of all taxes—town, county and State. Last year (crop of 1871), I lost at least two hundred bushels, that, but for the worms, would have sold in the spring for a dollar a bushel, above marketing.

This is the most discouraging aspect of this question,—the impossibility of securing anything like a unity of action, or a properly concerted effort against these pests, whether of the field or the orchard. This is abundantly exemplified in the case of the Potato Beetle, that is now ravaging the State. And if not more than one in three or four of the mass of farmers will come out and fight to the bitter end an enemy so obvious and palpable, what can be expected when the predator is so insidious and unapparent as is this apple worm? However, men's necessities sometimes bring them to the apprehension of truths that a prudent forethought and a wise economy may preach in vain.

There is reason to believe that not a very great many of these moths survive the winter, and the small proportion of the fruit that is spoiled by these in the depositing of their eggs would not be a serious matter if the product could all be caught in the larval state, so that there would be no second brood, and the pasturing of the orchard to hogs or other stock, if of any value, is in the influence it has in restricting the second deposit of eggs. And here is still a disputed point. Some claim that the apples that rear the first brood do not fall with the worms in them, or only to a very limited extent. Consequently the eating of them by stock does not destroy the insect. In my observations I am led to think that this view is a partial one. I have cut open a great many of these first fallen apples, and at all times during the season; and while those falling later have more worms in them, in the earlier ones, even before they were one-fourth grown, I have found worms, and when stock pick them up at once they must destroy a great many. Nor is the value of stock in the orchard confined to the number of the worms destroyed. The instinct of the miller leads it, measurably at least, to shun the trees where stock are. This was very marked in my several orchards the past summer. I had hogs or sheep, or both, in two of them. One of these was the worst infested of either last year, and this year comparatively free, while the one in cultivation, where stock were excluded, gave me nearly all my wormy apples.

In closing I wish to say to such of the members of the Volinia Farmers' Club as feel disposed to give some time to experimenting with this apple worm, that I will furnish these rims gratis to the number required for 50 or 100 trees, only stipulating that they shall be used as above directed, and the result duly reported to this club.

Fruit men in other portions of the State can no doubt obtain the common berry-box material in the flat, and without creasing, cheaper than I can afford these rims, and they would have the advantage of being longer, as they are some 24 inches long. In putting them on they should be soaked in water and tied with twine.

Now, gentlemen, it will be some time before the apple trees will be in blossom again, but in the meanwhile do not forget this little infinitesimal pest that is waiting, no less than we, but to spoil the harvest of our hopes.

DISCUSSIONS OF THE PENINSULA FARMERS' CLUB.

FUNGUS NOT THE CAUSE OF DISEASE—THE ADVANTAGES OF TOP GRAFTING.

OLD MISSION, Grand Traverse County, Dec. 18, 1872

Club met pursuant to adjournment, Mr. H. W. Curtis in the chair. J. E. Savage was chosen Secretary *pro tem*.

MR. AVERY—It is thought by some that the rot in peaches and potatoes is caused by fungus.

MR. PARMELEE—I wish just here to make a few remarks in regard to fungus. The theory of fungoid growth being the cause of disease has exploded. Every particle of air is filled with the spores of fungus; even air confined in a bottle is filled with it. Warmth and moisture of the air is very favorable for fungoid growth. You will notice that the mold on grapes and the rot in peaches is worse when the air is warm and moist. Fungoid growth is not the *cause* of disease, but is caused by, and will aggravate disease. In other words, there must first be a derangement or morbid condition, to give spores of fungus a congenial soil. Were it otherwise the spores that fill the air would attack all growth. That derangement is the embryo disease, and fungus one of the results.

MR. CURTIS—I wish to inquire if there is any objection to top-grafting apple trees. For instance take hardy trees—N. Spy, Ben Davis, or some other good growing variety. Set them in orchard and let them grow until they become of bearing age,—until they get good large heads, and without trimming,—then graft the main limbs, and when the scions have grown large enough cut the balance of the limbs off; would not that be a better way than to cleft graft below the limbs?

MR. SAVAGE—It is the general practice with nurserymen when top-grafting to graft when the tree is smaller, putting the scion about the right height for the head and in the leading shoot, and when the scion gets a good start cut off all limbs below the graft.

MR. AVERY—At the last meeting of the Club the idea prevailed that the top exerted a great influence on the root. Now we assume that roots of the N. Spy are in every way satisfactory; would the Lady apple or other slow-growing variety grafted on it exert such influence on those roots? If so, I do not see the use of top-grafting such varieties as do not burst in the body.

MR. BRINKMAN—You can grow a Steel's Red as large in one year, top-grafted on a good stock, as in three years the ordinary way of root-grafting. I have tried it on a large seedling with the result as stated.

MR. AVERY—If the leaves have already exerted their influence, perhaps Mr. Curtis' proposition would be the right one.

MR. BRINKMAN—I believe seedlings budded will be as large in one year as in three years root-grafted.

MR. CURTIS—I am thoroughly satisfied that there are some varieties, like Steel's Red, that are advisable to raise that we cannot get in nurseries, that are large enough to set. Now, what is to be done? You grow the Ben Davis in three years large enough to set in the orchard; and then you have got something to graft on, and I have good reason to believe that the roots will help us a great deal. Now, which is the best way to graft, in the limbs, or body?

MR. AVERY—In 1862 I had some grafted four feet from the ground, and they made such a growth that I lost the most of them the following year by breaking off.

MR. PARMELEE—I think that to be the way to raise Steel's Red. Suppose you have Ben Davis, or some other good-growing variety; the roots will be large, and if we graft a slow-growing variety on it, it will have the influence of those roots to make it grow. I have seen Steel's Red growing and bearing, and doing as well as other varieties. I would prefer to graft in the limbs as soon as they are as large as the thumb.

MR. BRINKMAN—I do not think there is any danger of Steel's Red winter-killing.

MR. W. PARMELEE—I do not think there is any danger of any tree winter-killing here if the wood is well ripened in the fall.

MR. E. WAIT—I had rather put two scions in a stock; then if one should die the other might live; if both should live, cut one of them off.

MR. GRAY—Does the stock of the seedling have any influence on the fruit?

MR. CURTIS mentioned the circumstance of the Spitzenberg changing into a sweet apple mentioned at the last meeting of the Club.

MR. SAVAGE—I have heard many stories in regard to changing fruits that facts will not warrant, among which is one of splitting the buds of a sweet and sour variety and inserting them in such a manner that they will unite. It is said that each apple grown on that tree will be half sweet and half sour. Another one is to split a cherry tree from the terminal bud to the root, scrape out the pith of the tree and put it together again, and the cherries grown on that tree will have no pits,—and many other stories equally absurd. Such stories have been told until some people believe them to be true.

MR. PARMELEE—The Tulpahocken—or Fallawater it is sometimes called—is a very thrifty-growing tree. I have seen it in St. Joe in many orchards, and they are invariably the largest tree in the orchard. Mr. Stone has one of them in his orchard.

MR. BRINKMAN—The best growing tree in nurseries that I have seen is the Sweet Pear. I think Greening grafted on that would make a straight tree.

MR. Parmelee enquired of Mr. Porter if his Wagener trees bore much this year.

MR. PORTER—They did not bear more than specimens. They have borne with me only every other year. They bore a good crop last year and I think kept some better than Baldwin. Jonathan and Baldwin kept about alike. Golden Russet and Rose Russet kept about equally. The Limber Twig will keep all summer, but are shy bearers; they bear on the ends of the limbs.

MR. AVERY—They are like the boy's horse: hard to catch and good for nothing after he is caught.

MR. PARMELEE—The Vandevere Pippin is a very valuable variety. The apple is as smooth as the Maiden's Blush, not subject to the moth, and is very

valuable for drying. Will keep until the latter part of winter, and until spring probably in this climate. It is different from the Vandevere *Apple*.

MR. CURTIS—How long will the R. I. Greening keep in prime order for the market raised here, handled with great care and in a good cellar?

MR. PARMELEE—The R. I. Greening is considered a good keeper. A year ago we had two barrels and they were not fit to eat until April, and kept until August.

MR. PORTER—I have raised Greenings for the last five years and cannot get them to keep in good order for market longer than April.

MR. PARMELEE—The Greening has peculiarities like the Northern Spy. They ripen unevenly. Some are fully ripe at the time of picking; but a man that has had any experience can tell them at a glance, and they should be picked out. Grown on young trees they will not keep well, but when the trees are large they will keep as well as the Baldwin. Last year the apples were more matured in Berrien County the first of Sept. than they were here the first of Oct.

MR. AVERY—I think that the Greening, Baldwin, and Spitzenberg are the best for market.

MR. CURTIS—I want to set an orchard in the spring. I have varieties enough now, and do not wish to set more than one variety and I want to have that the *best*, if I can ascertain what that is.

MR. AVERY—How would it do to set one half of the piece to the Lady apple, and the other half to the Wagener, say 68 trees to an acre, which will be 20 feet apart each way? These varieties will do well to set that close together.

MR. CURTIS—The objection I have to that is that if the Lady is the best, I want to have them all Lady, but if the Wagener is the best, I want to have them all Wagener.

MR. GRAY enquired about the Belmont. He never saw a person but would choose an apple of that variety for eating. They were an early winter variety in southern Ohio.

MR. CURTIS—I saw some at the fair last fall and they were very beautiful. They were from Riel Johnson's orchard.

MR. PARMELEE—Apples should be kept in tight barrels, the tighter the better, so that the air will not change, and at a low temperature. There should be a thermometer kept in the cellar, and windows for ventilation. 30° to 32° is warm enough and I should not be afraid if it should sink to 28°. The apples in the barrels would not freeze. Atmospheric changes have a great effect in the ripening of fruit. The more uniform you can keep apples the better. Though the temperature of the cellar may change 5° or even 10° the air in the barrels might not change a degree.

MR. AVERY exhibited some large beets of two kinds which he said were tender, crisp, and nice for eating, which he distributed to members for seed. The club then adjourned until next Thursday.

J. E. SAVAGE, *Secretary pro tem.*

THE ELECTION OF OFFICERS FOR 1873.—HIGH AND LOW TRAINING OF TREES.

OLD MISSION, Jan. 2, 1873.

This being the annual meeting of the Club, according to Article 4 of the Constitution, the Club met with H. W. Curtis in the chair. After the reading of the minutes of the previous meeting, and of the constitution, the club proceeded to the election of officers for the ensuing year.

Mr. Chauncey P. Avery was unanimously elected President, J. E. Savage Secretary, and George Parmelee was re-elected Treasurer. Mr. W. W. Tracy and H. K. Brinkman were elected as committee on business. The Club then proceeded to the discussion of the question before it, viz.: "Fruit and fruit trees."

MR. CURTIS—It seems to me to be of much importance to know how high apple trees should be headed. I am of the opinion that trees should be headed high enough so that a horse can go under the branches in cultivation. Elwanger & Barry, of Rochester, N. Y., are training the trees in their nurseries very low, from $1\frac{1}{2}$ to 2 feet in length of body. We got our trees at the Painesville, Ohio, nurseries. We think they are nice trees, the bodies are stocky, but they are universally too low. We must certainly cut off the side branches some time. The first lot we got, I trimmed my part up to a whip immediately after setting. Last year I left them until fall before trimming. If I had wanted to have trees headed low I had just the trees wanted for that purpose. I have been up to Mr. Parmelee's and have seen his orchard. His trees looked stocky and fine, but according to my ideas they had limbs too near the ground. I asked him if he would not trim them off? He said he should leave the most of them but might cut some of them off? I think the reason they are so low is because they were headed so in the nursery. Suppose we allow Greening trees to head three feet from the ground, in a few years they will occupy the ground. Now how are we to get into the orchard with a team? The limbs of the Northern Spy and Baldwin will run up, but those of the Greening, Rox. Russet and Talman Sweet will go down.

MR. TRACY—How high should they be headed?

MR. CURTIS—Six feet.

MR. TRACY—Could the Greening be headed that high?

MR. CURTIS—Yes.

MR. TRACY—If you head them that high will not the limbs hang down and be in the way?

MR. CURTIS—I remember I had an orchard in Ohio and the limbs were high enough so we could drive a wagon through the orchard anywhere. The Greenings were top-grafted. Their limbs hung down but were not in the way. If trees were high trained and the limbs hung down too low, they could be propped up, which could not be done were the trees low trained, and while in bearing.

MR. TRACY—The question has been discussed in Agricultural papers a great deal. In one instance after it had been running some time it was ascertained that those who advocated *high* training were invariably *tall* men, and the advocates of *low* training were invariably *short* men, and the idea seemed to them so ludicrous, that they dropped the discussion.

MR. E. FRANKLIN—When I was at work in my orchard I always thought my

trees were too low, but when picking fruit I always thought them too high. In loose sandy soil I have seen holes around the body of the tree, in some instances of the size of a water pail, caused by the wind swaying the tree. I had an orchard in the south part of the State. The trees were trained high. On the Talman Sweet and Greening the limbs hung too low.

MR. HEDDEN—On my father's place the trees were trained very low, so low that one could not see a team in the road by the side of the orchard without getting close down to the ground. Those trees never split down, and it is one of the best orchards in the State. It is now 40 years old, and root-grafted. One tree was high trained, and we always had trouble to gather the fruit from it. The orchard was cultivated 18 or 20 years, and the branches on the most of the trees came together, and in some instances passed each other. Is there any other reason but the convenience of cultivation, for high training?

MR. CURTIS—If Greenings were set alternate with Wagener, low training might do—but an orchard set altogether with Greenings and low trained you could not get through when the trees got large and came into bearing.

MR. TRACY—Some object to high training on the ground that the body of the tree is more tender than the limbs. In Wisconsin trees that were low trained were not killed, while those that had high tops were for the most part killed. High training might be objectionable on that account.

MR. CURTIS—I had two trees in Wisconsin that were low trained,—the limbs came out within six inches of the ground. They promised well for five years; but they are going now the same as the others. The south side of the limbs are dying and dead, half the top of both are dead. But we need not take this point into consideration here. We are not troubled in that way.

MR. PARMELEE—I want to say a word about this training of trees. We cannot make a mark and say "that is the place for the head." I have some trees that do not suit me. If I were allowed to go into a nursery and select as I would wish, I might get all perfect trees, but it is not to be expected that if I were buying a thousand trees that they would be all perfect, and we must do the best we can with those that are not. There are some varieties that we cannot get to head as high as we might wish. I can point to some extremes. Some persons set a tree and prune it up to six feet high, with a top about the size of a hen. Such a man needs experience. It will not do to take off too many side branches at once; it will rob the tree. I favor a good while, six, or eight, or ten years, in getting the tree as high as necessary. I do not believe in very high or very low training. You can get something to stand on to gather your fruit. A dry goods box is not the best thing you can get. A man who has much fruit to gather needs a good fruit ladder, and then it makes no difference whether the trees are three or five feet in the body. I do not believe we can get as good color in fruit on low trees as on high. The lower leaves on trees and plants are not healthy. In old orchards the lower limbs need cutting off,—if allowed to shade the ground the moss will cover it and the air will be excluded to a certain extent from the orchard. There are many things about fruit, its fairness and its color, that cannot be explained. I have seen trees that I thought were headed too low. The fruit was not fair. In peaches low trained they generally divide into four or five limbs, and in this way, having more and more leverage, finally break down. The way to do is to keep a leader if possible, but it is not always possible. I have often seen holes in the ground around the body of trees. They are as apt to be around a low trained tree as a high one. The true cause is setting the tree too deep in the ground.

It may seem strange to some that setting a tree deep would make it loose in the ground, but such is the fact. You may find some trees in my orchard that are loose, but it is almost always because they are set too deep. Sometimes a tree has no root on one side, and such trees will loosen. Roots left to themselves seek a level. If they are set too deep they will be too far from the heat of the sun, and from the air and ammonia that is near the surface. You will find that a tree set too deep will make roots slow. The orchard that was on my place when I bought it, was set by the former owner and the trees were all loose. My son transplanted them, and he found in some instances trees that were one and one-half to two feet deep.

MR. CURTIS—Mr. Parmelee has alluded to one idea that I had intended to speak of, and that is a leader, and avoid large crotches. Soon after I came here and hearing the discussion on plant growth, I became satisfied that to cut off a large quantity of limbs would retard growth. The trees I bought seemed to have been cut off four feet from the ground, in the nursery. I could find the old cut, and they were headed out below that; just so sure as we set them in that way they would make crotched trees and this had to be remedied some time. Mr. Strong decided to leave his as they were, but soon as mine were set I went through them and selected a limb for a leader,—and I had not much trouble to find one, except on the Greening. They were the hardest to find a limb that would do for a leader. I cut all the rest of the limbs off a few inches from the body, and in the fall cut off the stubs. My trees did not grow as large tops, and I do not think made as much body as Mr. Strong's, but they made a growth, and were free from disease. Last spring I found these whips threw out side branches not as nice on Greenings as on King of Tompkins Co. or Golden Russet, and did not grow as much as Mr. Strong's, but even he admitted that they were nicer trees. I have my trees now in such a position that I can form the top in four or six feet from the ground as I may choose. Mr. Strong's stand as they came from the nursery, crotches getting larger every year. These limbs must be cut off some time and it seems to me that the longer they grow without trimming the greater will be the sacrifice. Those I set last spring I did not trim until fall and then not to get a high top but to get a good shape and avoid all crotches. I shall get as straight trees as before. I got an idea from Thomas Tyrer that is worth a great deal. Suppose you have a tree that has no leader, you can select a limb that will make one, then cut another limb from the opposite side of the tree, leaving a stub some six inches long; bring the two together and tie with basswood bark, when you will find that the stub will hold the limb in an upright position.

MR. E. FRANKLIN—I had to do that way with my peach trees three years ago. They winter-killed and branched out the following summer. Nearly half my orchard was in that fix. I treated them in that way, and now you cannot tell them from the rest. I think the nearer the surface a tree is planted the better, so as it is deep enough that it will not dry out.

The Club then adjourned for one week.

DEEP AND SHALLOW CULTIVATION.—THE TIME TO CEASE THE CULTIVATION OF ORCHARDS.

OLD MISSION, Jan. 29, 1873.

Club met pursuant to adjournment, Mr. C. P. Avery in the chair. "Cultivation of Fruit Trees," continued.

MR. CURTIS—I have a subject to place before you to think about, and we may at some future time take it up; and that is, how deep is it necessary to cultivate? The inference would be from remarks made at previous meetings that two inches was deep enough. Now, it may be that this shallow cultivation is good and it may not be; not having thought much about it previous to these discussions, I am not prepared to say. You are aware that they had this subject under discussion in the American Institute Farmers' Club, and the statement was made that in a certain county in New Jersey, it was the practice to give corn but very shallow cultivation, and they got very good crops. Those who advocated deep cultivation considered there must be some mistake, and a committee was appointed to go there and examine into it and make a report. They stated that the soil in that county was naturally underdrained and that it is unnecessary to cultivate as deep there as in other soils, and that where the soil was not underdrained thoroughly, deep cultivation was necessary. Now, a great deal of our soil is like that county in New Jersey, loose, porous, and well underdrained, though I think there is a misapprehension in regard to this in places here. I find on my place that by digging from 18 inches to two feet I come to a hard-pan. Generally on our uplands this will not be reached by the plow, but it sometimes is, and it is found to be very hard and stiff. I think that where this hard-pan is, two inches of cultivation would not be enough to furnish air and moisture. I am inclined to think that you would not find, in a drouth, much moisture below where the ground is stirred. If this is so, would it not be better to cultivate deeper, even if we do break some roots? Suppose we follow this system—let the cultivator run shallow near the tree, but further off let it run deep and break whatever roots are in the way.

As I said before, I have not given this subject much thought, and offer these ideas more as *suggestions* than assertions,—but I believe that with eight inches depth of cultivation, drouth will do us no injury. I can raise a corn crop without a drop of rain from the time it is planted until harvested, by frequent, thorough, and deep cultivation.

MR. AVERY—I think the surface roots should not be broken. Nature keeps her roots near the surface. You will notice the trees in the forest, where they tip over, the roots are all within a foot or eighteen inches of the surface.

MR. CURTIS—I always feel pity for such trees. I have been where trees would tip over, but they do not generally do so here, they *pull out*. Now, I would submit that our apple trees are not *natural* trees. If we were to sow apple seeds and let them grow thickly and as they would, *those* would be natural trees; but the way we raise apple trees is different. We take a small section of a bearing tree and splice it on a young root, *make* our trees in that way, and that is not natural. Nature does not do business that way. Nature keeps her soil shaded and mulched for moisture. In cultivating trees we must compensate in some way for the want of this shade and mulching. If we keep

the surface mellow, that will induce moisture, and it may be that two inches is enough, but I am afraid not.

MR. BRINKMAN—I am glad that Mr. Curtis has alluded to this subject of shallow culture. When I heard the minutes of the last meeting read, it conveyed to me the impression that it was generally conceded that two inches was deep enough to cultivate, and if not intended to convey that impression, that fact should be known. One half of my pear orchard is on clay. I find in cultivating this orchard that on the sand, a double shovel plow does well, but for the clay portion I find a one-horse plow turning a furrow four inches deep, to do more good, but still better to turn a furrow as deep as possible, except when close to the tree. Mr. Parmelee cultivates his trees that way, and I agree with him as to the mode. Another point in regard to this cultivation of fruit trees that has not been touched upon: that is, when to commence and when to quit cultivation. Three years ago there was two-thirds of the nursery stock killed back and many orchards injured by too late cultivation. Now, I should like to hear some discussion on this point.

MR. E. FRANKLIN—That would depend on the age of the trees. If the trees were large they could be cultivated later than younger trees.

MR. SAVIDGE—I understand that our discussions relate more particularly to young trees. Our country is new, and the number of old orchards is so limited that but few would be benefited by a discussion of their treatment. What we have to do with now is the treatment of our *young* orchards. Before I came here I had but little experience in the management of growing orchards—but three years ago I had the experience common to you all. That hard freeze in the last of October in that year injured my yearling nursery stock very much, and the cause was that it was cultivated too late, and was still growing when the frost came. As a proof that late cultivation was the cause of injury, that portion of my stock that was not cultivated late was uninjured. Also with orchards. Our peach orchard was not cultivated late owing to press of work, and it was injured only on the tips of the limbs, at the same time neighbors that cultivated late had peach trees killed to the ground. As to the time to commence cultivating in the spring, we know that the sooner we commence the sooner will the trees commence to grow, and when *growth* is the object sought, I should say the sooner you commence to cultivate in the spring the better. But for peach trees in bearing there is some danger of spring frosts injuring the fruit while in blossom. I believe it is generally conceded that there is a critical time of three or four days when the fruit buds first open, when a very slight frost will injure them. Now it is my plan with bearing peach trees to defer cultivation until the fruit buds show signs of opening, and by that means retard the blossoming, then give them a good thorough cultivation and hoeing, and by that means hurry them through that critical time. There is no tree that will feel cultivation, or the want of it, as quick as the peach. As to the time to cease cultivation, I always give my trees a thorough cultivation the last week of July, and do not touch them again until after there have been several hard frosts in the fall. I find that my trees grow as late as it is safe to have them grow, and that they ripen up their wood well. I think that it is a good plan to plow or cultivate an orchard in the fall after there is no danger of starting a new growth, as it can possibly do no harm, and will leave the ground in better condition for the spring. As to older orchards bearing later cultivation I have no positive knowledge, but should think that it would not do to cultivate much later than the first of August, as

it would leave the fruit buds in an unripe condition, and they would be more apt to winter kill.

MR. CURTIS—I think that were a vote taken of this Club, it would be unanimous that the first of August would be as late in the summer as it would be safe to cultivate.

[To this there was no objection.]

The most successful fruit-grower in Orleans County, N. Y., was in the habit of plowing his orchard in the fall and dragging in the spring, then plow the other way, and drag down and cultivate. He would never allow the ground to go more than five or six days without stirring. In plowing he would let his plow run eight inches deep, and if it struck roots let it cut them off—he would never throw the plow out for a root ten feet from the tree. I done so with my orchard in the south part of this State, and raised a good orchard. I do not care how deep you plow, it will do no hurt. If I could not plow more than two inches I would not plow at all.

MR. AVERY—The majority of people do not plow more than six inches deep and probably that is not too much. Mr. Smeed, of N. Y., had an orchard that had been for a long time in pasture, the trees looking very badly. He plowed deep and had an enormous yield, eight or nine barrels to a tree.

MR. MARSHALL—The only way is to plow. The ground needs turning over. I have thought that I could get the ground in such order that cultivating would do, but have never been able to do so. The gang plow is a good tool to work an orchard with.

MR. CURTIS—In a dry time stirring the ground will kill weeds. In early spring the ground is alive with weeds. If it is dry the harrow will kill them, but if you have two or three weeks' rain they will get the start so that a cultivator will not destroy them. I want something that will draw as easy as a cultivator, cover as much ground, and reverse the soil. We can do this with a gang plow, but it is too heavy.

THE IMPORTANCE OF WIND-BREAKS.—ADDRESS OF MR. H. W. CURTIS.

OLD MISSION, Feb. 19, 1873.

MR. CHAIRMAN,—I am so thoroughly convinced of the paramount importance of shelter belts and wind breaks that I ask to be heard further.

Winds! Who has not felt their force and seen their power? They lash the waters into foam and strew the shores with wrecks. How our forests writhe in their fury, and the noblest of their monarchs are prostrated! Stand where it has an unbroken sweep, in a severe gale, the fall of snow, and the mercury at or below zero. Yes, stand there and take it! Stand a minute,—stand an hour,—stand and take it ten hours,—*ten hours!*—How do you feel! It is easier to tell how *much*, than *how*. Just as much as Lot's wife felt *after* she became a pillar of salt. I ask everybody to think of and reason on the fact that a low temperature, accompanied with a high wind, is absolutely unendurable, and as destructive to animal life as fire or pestilence.

On the other hand, a low temperature in still air is hardly noticeable. Everybody, almost, has experienced the entire harmlessness of still, cold weather,

and would have known nothing of it but for being told by some one who had noticed a thermometer. It is the wind part of our "cold snaps" that hurts,—*hurts so terribly!* How fearfully does Minnesota and the wind-swept Northwest emphasize this fact in their reports of recent storms.

Now, whoever heard of one perishing in the woods from cold, if of sound mind and body, with enough to eat, and the means to build a fire? It may have happened. I never heard of it. What, then, is the difference between shelter and exposure? It is the difference between life and death. In the one case we pass along without danger, or the appearance of danger. In the other, we expose ourselves to the most fearful peril. I believe it is now taken for granted that the effect of wind and cold combined on plant life is the same in nature as upon animal life. An apple tree may endure a degree of cold and wind without injury, that would kill an ox. But a degree can be reached in which the tree will succumb; and that degree will be much higher with than without wind. That is, it may stand 40° below zero without wind, when it would be killed with 20° in a gale. Fruit blossom buds, especially peach buds, answer to this law. If anybody knows the why and wherefore of this, I do not know who he is. I wish I did. I have heard reasons suggested. The main one is that the moisture, which is the life of the tree, is evaporated so rapidly that it dies. But of the cause, I am ignorant. Of the fact, nobody is ignorant.

Mr. Chairman, we have winds,—high winds,—frequent winds,—heavy winds. With these I know well that we do not get as low a temperature as is common farther south. But we have had eighteen below zero this winter. This is a hint that we may not be reckless,—a hint that the more cautious we are, the more safeguards we throw around us, the greater will be our security. For this region now is an opportune time to consider this subject and urge it upon the attention of the people. The native forests are generally standing. Out of these, farms can be carved, leaving bodies and belts of timber standing, of such dimensions and shape as to secure the needed protection. Nothing better is wanted than our own maples, and beeches, and hemlocks, and whatever else grows in our forests, for these belts. The people need to know how important they are. They need, also, to have correct ideas of how they should be arranged. The people of this country, as in all new timbered countries, seem to look upon trees as their direst enemies. They seek their destruction by slashing and burning; and act as though they would invoke, if possible, a timber plague more devastating than the worst of the plagues of Egypt. The place for their dwelling is first hewed out. Down falls every tree, and bush, and shrub. Joy is complete when all is dissolved into ashes and smoke. The house is built, the opening enlarged so as to let in the winds, and they come with their fury, and drive the snow into and through every crack and cranny, and pile it up in huge heaps around them. How could misery be made more complete?

There stood the natural trees, which, if let alone or only trimmed and the unstable ones removed, would rob the blast of all its horrors. Suppose that in preparing for a residence, an acre of ground were cleared off, and around it a belt of the original forest were left two rods deep, treated as above suggested. The under-growth would soon become very dense, and the younger trees spread out their tops, and their bodies grow stocky and strong. The old trees would and should soon be removed. But there would stand a wall of live wood. How a man so protected would pity his wind-swept neighbor. His apple trees,

and peach trees, and cherry trees, and plum trees, and pear trees, would stand up straight, and have shining bark, and bear great loads of luscious fruit, while his neighbor, to get from his house to his barn, would have to "stub and brace," and his trees, "poor pitiable things," swaying and swinging and half bent over, groan to be delivered from such a crushing burden. Suppose again, that around every ten-acre field or every forty rods square, just such a belt were left on all the cleared land of the Grand Traverse region. There then would be nine acres of cleared land where there is now ten. Such belts would occupy just one-tenth of the land. I may be mistaken; and I certainly am if the yield of nearly all ordinary farm crops would not be largely increased. And again, suppose that only an opening thirty feet wide had been made through the center of all our roadways, leaving a border on either side eighteen feet wide of all the under-growth and thrifty young trees. Very soon the tops of these would meet over the road, forming a perfect shade in summer, while the sides would thicken up sufficiently to break the winds in winter, and prevent the snow from drifting. Who has not heard or read of the "Lindens" of Berlin, and the great shaded avenues in the suburbs of Paris? Here, through all our highways we could have just as magnificent drives, not by planting out at expense and waiting a long time, but by letting alone what nature has already placed and grown just where needed.

What I have said so far is in the interest of all agricultural industries. But it has a special application to fruit growing. Fruit growers everywhere know how blossom buds are killed by windstorms, when they would pass unharmed through the same degree of cold unaccompanied by wind. I believe that still cold weather has never been known to injure fruit trees, not even peach trees. The cold wind storms have done the destructive work, both to the trees and buds. Stop the winds then, and both are secured, or the per cent of danger lessened. But again, suppose you have grown a beautiful crop of apples on an exposed orchard. Call last fall to mind; from all orchards so situated nine-tenths of the winter fruit was shaken before gathering, before time to gather. Such become cider apples, apples to "dry," or feed to stock, or to be left on the ground. They are destroyed for keeping. So it is ruin anyway. If the ruin of cold windstorms is escaped, the ruin of having the crop shaken from the trees is almost inevitable. The only safety is protection. It has been said that orchards are self-protecting. The wind evidently strides over the top of forests, the surface of which is thick and even. But our orchards stand in open rows, giving the wind an excellent chance to drive among and get hold of the trees. It would seem as though self-protection here must be very slight.

Here on our cleared farms the destruction is complete. The windbreaks have got to be grown. What is most available for immediate use? Hard maple set in double rows eight feet apart, and eight feet apart in the row, well cared for, would probably answer an excellent purpose. White pines would be better, but most expensive. Lombardy poplar would probably be less expensive and make a windbreak quicker than anything else. They are easily propagated, grow rapidly and very tall.

Mr. Chairman, I deem this subject of the most vital interest. It seems to me that orchards must prove failures if we leave them unprotected. But I have discussed many points with brief sentences and paragraphs, each of which might well do for a lecture.

I can therefore only hope that such may be suggestive and lead to careful investigation. Let me not be understood that just an acre for a building spot,

and just forty rods square, are the exact dimension. I only claim that the proportion of shelter to cleared land should be such as to make the protection ample.

TRANSPLANTING.

Mr. Tracy then opened the discussion on transplanting, as follows:

We have practically but two seasons for transplanting, fall and spring. Those who advocate fall planting say that the earth has time to settle about the roots during the winter, and the roots may sometimes even make a small growth, and they generally will become callused over the cut extremities, and so be all ready to commence growth in the spring. This is a strong argument, but it is objected to, that if we have cold, dry winds they will carry off more moisture from the limbs and the exposed parts of the tree than the roots can furnish, and the result is that the trees become somewhat shriveled and dried. There must be moisture supplied in the spring to counterbalance this loss, before the tree can commence to grow, and so we may lose far more than we have gained. In spring setting what advantage is gained in this respect is, I think, sometimes lost by delay in setting. Sometimes the setting is delayed until the buds are open. It is true that if the trees are taken up in fall and sheltered, they may be kept back. But still I believe many trees fail by being set too late.

We all know that trees make most of their growth during a few days or weeks of spring and early summer; it is fair to conclude that the air is then in the best condition to promote growth. In any ordinary setting it will take some time for the trees to recover from the injuries received in transplanting, and get into condition where growth is possible, and if we delay our setting there is much danger that this time will carry us beyond the most favorable season in growth, and into that which will simply induce a ripening of wood already formed.

It is not so much the want of rain, but the dry atmosphere, that is so hard on trees set too late. Another matter: It *seems* of small importance what day we select to set trees; but I think it is of much importance. When a day is cloudy it would seem that it must be a good day; but it may not be as good as a day when the sun is shining. It wants a moist air. Moist air and sunshine is not so bad as dry air and a cloudy day. I will tell you how you can make a little instrument with which you can tell the relative difference of moisture on different days. Procure two ordinary thermometers, take them out of the case with the metallic slide attached, fasten them side by side on a board, under one of them suspend a test tube or vial filled with water. Cover the bulb of this thermometer with a piece of linen, letting it hang down into the water in the test tube. The water will pass up this piece of linen to the bulb by capillary attraction,—the same as oil passes up the wick of a lamp,—keeping the bulb moist. Evaporation always, as we say, consumes heat, and with this arrangement any evaporation from the cloth must draw part of its heat from the bulb of the thermometer, which will consequently stand lower. The more water in the air the less will be the evaporation, and consequently the less will

be the difference between the two thermometers. The difference between the two with the same amount of moisture also differs with the temperature, but we can easily make or procure tables giving the proportion of water in the air indicated by difference between the two thermometers at different temperatures.

In taking up trees the spade should be used with the side towards the tree. The tree can be raised with nearly the same ease in this way, and with less damage than if the spade were inserted at right angles with the roots. After taking up the tree, all bruised or broken roots, also those cut by the spade, should be cut off with a sharp knife, as they will heal over more readily if cut with a sharp implement. The tree while out of the ground should be protected from the wind. I usually use old coffee sacks to cover the trees while taking them to the field to set. I am somewhat at variance with most people in regard to puddling trees. If a tree has been abused, puddling may do some good; but if the tree has been used well, I think it would not be best to puddle. As to depth for setting, I prefer to set the collar of the tree at the surface of the ground.

MR. S. P. TRACY—My father in setting a hemlock hedge put water around the trees, and every spring he had to reset one-half of his hedge. After a time the water was neglected, and now there is a good hedge.

MR. PARMELEE—I like very much this talk about transplanting trees. We must not pay attention altogether to what is told us, if what is told us is against our experience. If experience is against puddling trees, it is best not to puddle. In reference to transplanting in the fall. I apprehend the theory—and it is but a theory—comes from the fact that there is a growth going on in the winter. All nursery men know that root grafts packed away in the cellar from their union during the winter; also upon the other end of the root is a callus formed. It is the same with the trees in the ground. This callus is the preparation for the roots to start; and so far that is all right. But here is one fact: This does not compensate for the moisture stolen from the tree during the winter. If I am against anything, it is fall setting of trees. I have tried it, and never had trees do first rate thus set. I believe there are instances where puddling trees would be beneficial, and that is when they are not fresh. If the trees were not fresh, I would not puddle, for it has a tendency to make the fibers hang down in a mass, and they cannot be set out in as good shape as without. The crown of the tree is somewhat dependent on the soil in which the tree grew. If in the clay it will be near the surface of the ground; but if in sand, the crown will be much below the surface. I should set trees the same as they stood in the nursery, if upon the same kind of soil. In regard to cutting the tops I know there is a difference of opinion between men. I have cut and got a good growth, and have got a good growth without cutting. I don't know if there is any philosophical reason for it, but if my tree is dry I cut more, but if not I don't cut. I don't see the force of cutting off the limbs because the roots are cut, any more than I can see the force of cutting off a man's arm because he has had a leg cut off.

EMMER LADD—Does it make any difference if trees are not set the same side to the south as they stood in the nursery? Some claim that it does, and if not so set they will twist around until that side is in its right place.

MR. TRACY—I know of trees at the College that are twisted *twice around*. I suppose they had forgotten and did not know when to stop. But it is well to discuss these questions. There may be more in them than seems. I do not believe it makes any difference which side a tree is set to any point of compass, but would like to hear more on this subject.

MR. CURTIS—The author of "Ten Acres Enough," mentions having a small peach orchard on his farm. In setting this he cut all bruises, and covered the collar with tar. Ever since he had removed the ground in the spring and had but on tar, and he has had no grubs around his peach trees. Is there anything against putting tar on trees?

MR. PARMELEE—A friend of mine told me that the author of "Ten Acres Enough" never had a plow in his hand. I used tar once to keep off rabbits, but I never will use it again. I had to keep my trees covered up for two years. It is too penetrating, and absorbs too much heat.

MR. TRACY—I was told to put kerosene on my trees to kill caterpillars. It worked well,—killed the trees and the caterpillars starved to death. I have used carbolic acid, but have discarded it. Tobacco smoke is good. Common white whale oil soap is the best thing I have found to kill insects. But in my experience the best rule is to kill them by hand.

MR. PARMELEE—While Mr. Tracy was speaking I was thinking I would make a good hangman. If I find a bug I want to kill I don't go and get a goose quill and blow snuff in his eyes. The best way to destroy grubs in the peach is to get down by the tree, poke away the earth, and follow them up; which you can easily do by the gum. It is not much trouble to keep them down in this way.

MR. TRACY—I do not think it is good to use water in transplanting. I have seen trees set out, and a pailful of water poured on them. I have watched the effect of this, and it is to wash the earth from the roots, leaving them loose like they were in a tube. I never use water in transplanting small plants, although I have transplanted some when I had rather set up all night with them than have them fail. There may be instances where water would be good; but not generally. We should take pains to have every particle of the roots in contact with the earth, then if the tree is in good order when set it will be sure to live.

A nice collection of apples was displayed in the club room this evening, which were intended for the February meeting of the State Pomological Society, to be held at Battle Creek. They are to be sent to the Treasurer of the Society at Grand Rapids who will take charge of them.

They were contributed by Messrs. Fowler, Lardie, Curtis, Stewart, Montague, Drew, Parker, Dana, Roberts, and Parmelee.

Mr. Curtis also contributed a plate of Vicar of Winkfield pears.

There were Maiden Blush and Snow apples in good condition. All were bright, and showed keeping quality. A few sorts showed last year's leaf blight in their diminished size.

TRANSPLANTING OF FRUIT TREES.

OLD MISSION, Feb. 26, 1873.

Club met pursuant to adjournment, Mr. C. P. Avery in the chair. Subject for discussion, "Transplanting of Fruit Trees," continued.

MR. B. MONTAGUE—If I were to advise persons setting trees, I should say procure them near home. I believe they will do better than any others. There are no climatic changes for them to undergo; nor do they experience the dis-

advantage of change of soil. Another advantage: if you get your trees near home they can be set within two or three days after they are taken from the ground, and that is better than to have them shipped 500 miles and run the risk of being dried up in the box. Sometimes they heat in the box, and experience considerable damage in that way. I should say get as near home as possible. I agree wholly with what was said upon the subject of tree planting last week. I find no points to disagree. In setting trees I think it a good practice to set the tree leaning toward the prevailing winds.

The orchard I set three years ago leans to the northeast. I believe had I leaned the trees to the southwest, they would now be standing straight up. I believe trees should be set early for the best success, yet I have had good luck with late setting. I set one tree after it was in leaf and it did well. I think the less sunshine they have the better. I have heard of two trees transplanted while in blossom, one in the night, the other in the day. The one set in the night did well, and bore its crop of fruit. The fruit all fell from the other, and the tree nearly died. If I had not heard what Mr. Tracy said at the last meeting, I should say choose a cloudy day for setting trees.

MR. TRACY—I do not wish to be understood that a cloudy day is a bad one to set trees, but that occasionally there is a cloudy day when the air is more dry than it is sometimes when the sun shines.

MR. PARMELEE—We had last night an illustration of what Mr. Tracy said about moisture of the atmosphere. The bushes and trees were covered with frost, occasioned by the invisible moisture of the atmosphere.

There is a practice recommended by some in removing trees, to cut off the tap-root. I think this is an erroneous practice. The tap-root is a provision of nature for the support of the tree until it throws out its side roots, which eventually become the main roots. Our greatest difficulty is, we do not have roots enough, and we want all we can get. I think it is better to dig deeper, so as to let the tap-root remain on. The tree will dispose of the tap-root as soon as it gets through with it, the same as trees in the forest dispose of theirs. In reference to using water, there may be two sides to the question. In setting trees in a dry time, I have found it an advantage to use water. If we have many trees to set we cannot always wait for weather to suit. I would not pour water immediately upon the roots. The hole should be dug large enough so that the roots can be put in a natural position. Usually the roots are in such position that the earth needs rounding up in the center. After the tree is placed in position and covered to the crown with earth, then pour one or two pails of water around the outer edge of the hole; then fill up with loose earth. There should never be enough water so as to come to the surface when filled with earth. Before putting in water the earth should be pressed in contact with all the roots. The ground will not cake unless you let the water come to the surface. If it is covered three inches it will not cake. Sometimes when my trees are dry I bury them a week before setting, covering all, root and branch, with moist earth.

MR. TRACY—The greatest objection to the use of water is that where the roots branch out, water, as commonly used, washes the earth from them, forming a cavity underneath; and it is of paramount importance that the earth come in contact with all. No matter what the soil is, water poured on the surface will cause the ground to cake. So if we do use water, we should be careful to cover all with earth. I do not think it needs to be covered as deep as three inches,—one inch will do.

MR. B. MONTAGUE—I know some who practice dipping the roots in water before setting, to make the earth adhere more closely. On the question of mulch. If my land was in such shape that I could cultivate the trees, I would not mulch. If I could not cultivate, then I would mulch.

MR. AVERY—Mr. Hoyt, a nurseryman at Rochester, told me that when he was asked if mulching was good, he always looked at the man, and if he thought he was a lazy man, he told him yes, but if he had the appearance of a hard working man, he would tell him cultivation was better.

MR. PARMELEE—I am satisfied that this great rignmarole about mulching trees in winter to keep them back in the spring has a pernicious effect, and this theory has died a natural death. I don't want any manure near the roots, nor do I want any black muck; you might as well have manure. Pure black muck is death to a tree; better have pure black sand. Pure muck is mostly carbon—you cannot make a tree stand up in it any more than in a bed of mortar. I do not want any rich vegetable mould put around the roots of trees in setting,—better use the natural soil. In the matter of setting trees leaning, I should like to know more of it. My orchard is exposed, and I do not know of a tree that leans. There are some that look as if they did, but it is because the limbs are blown up by the wind—sometimes one limb gets hitched behind another. I have not a tree loose that was not set too deep.

MR. CURTIS—The first trees I set were peach trees. I plowed the ground and set the trees on the ridge. I was very careful to set the tree close up to the board I was using for a guide, following as near as I could Mr. Parmelee's instructions. I have never yet ridged up to the trees, and they stand shallow, with the roots near the surface. Those trees under the lee from the southwest wind are not affected; but those farther out, where the northwest wind strikes them, there is not a tree that stands up straight. They are all leaning badly, and two of them blew down. Just so with my apples: those not protected, many of them, are leaning. I have never seen a Rhode Island Greening tree that was straight. What objection would there be in setting them so that the crook would make them lean toward the prevailing wind? If you will notice the orchards on the Peninsula you will find the trees are all, or nearly all of them, leaning.

MR. AVERY—In setting young trees I would turn the side toward the wind upon which the longest roots grow, instead of setting the tree leaning. I believe the inability of trees to withstand wind is owing in a measure to the roots not being evenly balanced. By placing trees with the longest roots toward the wind, the strongest leverage will oppose the strongest pressure.

MR. TRACY—I have heard just the opposite; that the large roots give more growth, and will push the tree over the other way.

MR. PARMELEE—I have set more than 100 acres of orchard, and have not on an average staked one tree in five acres. My experience is that it is best to let the trees go until spring, then set two stakes and tie to both with a loop around the tree; then the tree will not rub on the stakes.

MR. MONTAGUE—It seems to me still to be an advantage to set trees leaning. The branches do not strike out as well on the windward side. The limbs on the lee are a third longer. If the top on one side is larger than on the other, it has a tendency to draw the tree over that way; but if evenly balanced, the tree will stand more erect.

MR. CURTIS—At a recent meeting of this club, I ventured to "hint" to those who contemplate setting trees the coming season. I referred to the severe cold,

that had occurred at Grand Rapids and Lansing, 38° and 45° below zero, and suggested that nursery stock grown in the vicinity of these places might be injured. The great amount of severe cold that has occurred all over the country then and since makes it doubly important that purchasers should be on their guard. The degree of cold that injures young trees is by no means uniform. It depends much on the condition of the wood when they go into the winter. Well matured wood not grown too rapidly, and consequently not *over grown*, is uninjured, when soft, immature wood is either killed outright, or so severely damaged that the trees will have a sickly life and die prematurely. I believe as a general rule 20° to 25° below zero is considered dangerous. I should not want to risk Baldwins and Greenings or any other varieties equally tender which had endured that amount of freezing; nor would I any of the hardier varieties, unless I knew that they had not been *pushed* with manure, and that the wood was well ripened. Hard freezing makes trees sickly; set them ever so carefully and nurse them ever so tenderly, they start feebly, live a sickly life, and die a premature death. Beginners, you want trees,—good, healthy, sound trees,—trees that will yield *fruit* instead of disappointments. You cannot be too careful *now*. In my remarks above alluded to I referred to the cold of Grand Rapids and Lansing. I do not now know how cold it has been at Painesville, Ohio, Nurseries, nor at the nurseries in the vicinity of Rochester, N. Y. But before you order trees from either of those places or anywhere else, by all means be sure that they are not damaged. I have seen a published statement that at the Grand River Valley nurseries the mercury only marked 24° below zero, when it went 38° degrees below at Grand Rapids. When it is considered that these nurseries are forty miles inland, and of course beyond the reach of water protection, this seems very remarkable indeed. I do not question the truthfulness of the statement. I only say it is remarkable—*very*.

MR. TRACY—The Grand River nurseries are peculiarly well situated in respect to land climate, being on an elevated table land, and it is quite possible that the thermometer should stand several degrees higher there than at Grand Rapids or even at the village of Lowell.

MR. AVERY—We have learned much within the last few years, about what shape or formation of land is necessary, to the growing of healthy nursery trees, and productive orchards. It is not many years since a large nursery was started on the Genesee River near its mouth, on a plat 150 feet lower than the surrounding country, because the proprietor thought that protected situation was just the place to grow good trees. The fact that he *froze* out, before he *sold* out, should warn others about like situations, while other locations on higher rolling land in the same neighborhood grew healthy trees that have made the reputation of Rochester nurseries world wide. So you will remember Ramsdell's nursery at Adrian, Michigan,—now extinct,—was ruined by extreme cold eight or ten years ago. This was owing to insufficient atmospheric drainage. In taking a drive of a few miles with your Secretary the other day, I noticed in orchards growing on low, level ground, nearly one-half of the trees had been reset, and that the bodies had a covering of old bark and moss (nature's protection against cold), while orchards on land that had an opportunity for the cold air to run off, had smoother bark, and bright butternut colored limbs.

Orchards, to be paying investments, set in 45° N. latitude, or any other latitude, should never be set on low ground, especially when there is no lower land in connection.

MR. PARMELEE—As far as I can get facts in regard to the winter of 1855-6, it was just about such a winter as this has been,—many nurseries that year had trees damaged. One man that I knew procured some that he was told might be damaged. He selected the best and set them as they were. The balance he cut off at the ground. Those which he cut off made good trees, while those he did not cut made but a sickly growth. I shall have to send out to get some varieties that I can't get here, and am waiting to hear more in regard to the temperature at different points before I order.

MR. CURTIS—We have had a cold winter, and there is probably much nursery stock injured. I would caution people in regard to the Illinois nurseries around Bloomington. I have two brothers living 30 miles from Chicago, on the road to Bloomington, and they tell me that the mercury went 34° below zero there this year; we had 8° below at that time. If the difference since then has been as great as at that time, they have had it cold enough there to ruin nursery stock. I don't say it *is* so; but it *may* be so. I would suggest that where the snow is two feet deep, the trees will be better than where there is no snow. I have usually bought my trees at the Painesville nurseries, and like them very much. I never have had but one tree but has leaved out. But I am fearful that they are injured this year. I think we have a right to caution people on this point of injury.

MR. TRACY—I endorse what Mr. Curtis has said on this point. If there is injury known we should speak of it. Five, ten, or even twenty cents on a tree is no object. We want to get trees that will live. Persons can get all the trees they want of agents without knowing what they get. It will pay any person wanting trees to go to a nursery themselves and get their trees. Home grown trees are worth double,—I would rather pay double for trees grown at home, other things being equal, than to buy trees from a distance. It would be a wise way to grow our own trees,—it would cost more, but be an advantage.

Adjourned.

J. E. SAVAGE, *Sec'y.*

INSECTS INJURIOUS TO STRAWBER- RIES.

AN ESSAY READ AT THE JUNE MEETING IN KALAMAZOO, BY PROF. A.
J. COOK, OF THE AGRICULTURAL COLLEGE.

I believe it is very common among us Americans, when we are in ignorance of the authorship of a witty, wise,—and I might almost add, foolish,—saying, to ascribe it to the eccentric pastor of Plymouth Church. Therefore, I will say that Beecher says that “doubtless God might have made a better fruit than the strawberry, but, doubtless, God never did.” And on this delightful occasion, as we behold the innumerable plates full laden with every variety, seeming to vie with each other in their matchless presentation of color and bloom, we feel to echo the phrase, Never did! You remember in Miss Mulock’s Noble Life, where the little boy was sent into the garden and told not to pluck the berries. You also remember when he returned to his good mamma, with the tell-tale stain upon his lips,—how he persistently denied being guilty of disobedience, thus adding sorrow to his fond parent’s heart, by the apparent falsehood. But when at last, questioned by “The Noble Life”—the rosy lip-stains being referred to as evidence of his double guilt, he made the very triumphant, and doubtless, to his loving mother, the very satisfactory explanation,—that he only opened his mouth, and they popped in. Imagine this a garden, and any of us alone in it, suffering under the cruel injunction of “touch not.” Is it not probable that we would show ourselves but children of a larger growth by a personal repetition of the above episode? It is doubtless well to subject children to some temptations, that by resistance virtue may be strengthened. But parents, suffer not yourselves to place such a temptation as the one above recounted in the path of either old or young. And, Mr. President, are not these marvelous exhibitions of the very *ne plus ultra* of the quintessence of Nature’s most luscious productions demoralizing?

Just think of the moral tension to which all souls who come hither are subjected. To only gaze and nothing more. Sir, we encourage envy, theft, and covetousness. Just manage to close or even turn the vision of this argus-eyed throng, but for a moment, and what popping in there would be.

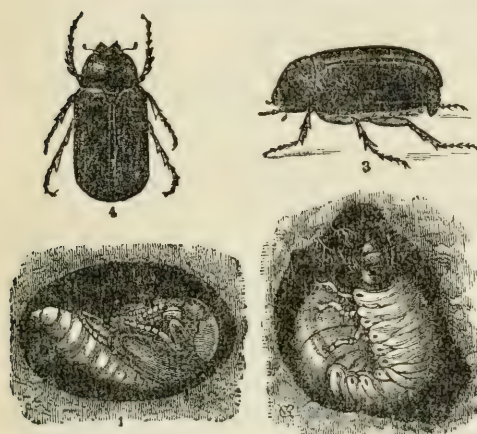
And now, Mr. President, if such temptations are too great for us, whom the myriad-minded poet has styled the “paragon of animals,” how can we blame the tiny insects, if they come forth to plunder in this realm of matchless beauty, and unrivalled lusciousness.

I believe it is Wordsworth that says, in speaking of mankind: “The good die first, while those whose hearts are dry as summer dust, burn to the socket.” But this is not true of our fruits; for while our more plebeian fruits are nipped in the bud, tunneled in growth, and feasted on in maturity, while the trunks

that bear them up, are riddled by infinite borers, or sapped by sucking bugs, and the leaves and roots that nourished them are skinned, torn, and eaten by scores of slugs, lice, grubs, and caterpillars; the peerless strawberry seems little disturbed by the thousand ills which her sister fruits are heir to. From quite a large correspondence, reaching to nearly all sections of the State, I learn that our favorite fruit is as yet almost wholly free from insect destroyers. To be sure there come unanimous complaints of the "White Grub," but even these are not very loud. It would seem then, Mr. President, that with me, "Othello's occupation's gone." But other localities not distant from us, are not so favored, but are subject to insect visitations; and as these same insect pests are just coming among us, it will not be amiss to describe them just now; that we being forewarned, may be as truly forearmed.

THE WHITE GRUB.

Lachnosterna fusca, Frohl.—Sub-order Coleoptera. Family Scarabæidæ.



Few insects are more frequently seen by the plowman than that fat, sleek, old gormand, the white grub (see 2 fig.). Turned summarily from its earthen bed, it curls slowly up as if to meditate upon the best course to pursue, in view of so undignified a disturbance. Quite as familiar to all of us is the imago of this grub, the May-beetle (see 3 and 4 in fig.). All are acquainted with its loud hum, as it comes lumbering lazily into our rooms during the warm evenings of May and June. This supposed bravery has given it the name of Dor-beetle, and the heedless manner with which it thumps against wall and lamp, and even our faces, gives rise to the popular phrases, "Blind as a beetle," and "Beetle headed."

* May Beetle.—1, Pupa; 2, Larva; 3 and 4, Imagines.

The *Lachnosterna fusca* belongs to the same family of beetles, and is closely related, in both structure and habits, to the rose chafer, which was described in a report read before the society at the last December meeting, and published in the Report of 1872.

The May beetle (see 3 and 4 in fig.), comes forth in May and June. It is of a deep chestnut brown color, heavy and robust in form, and nearly one inch long. Above it is covered with punctures, and on each elytra, a technical term denoting the upper wings, are two or three raised longitudinal lines. Beneath it is thickly covered with yellow hair. The antennæ are lamellate, that is the last three joints are prolonged and may be shut close together like the leaves of a book. This peculiarity, as also the form, gives quick determination to the members of this family.

The beetles feed in the evening on the leaves of oak, apple, and cherry trees. In 1868, they were so numerous at the Agricultural College, that their hum in

* The cuts in this article are all from electrotypes, procured from Prof. C. V. Riley, State Entomologist of Missouri, by whom the drawings were made. All the Entomological cuts in the Report for 1873 were from the same source.

the various oak trees, was as loud as that made by a large colony of bees as they swarm out from their hive.

In June the beetles pair, after which the male soon dies, while the female descends a few inches into the ground, and lays her several score of small spherical eggs, after which she dies. The whole life of the imago is not more than ten or twelve days, though some come much later than others.

In two weeks the eggs hatch into small white grubs, which for three years feed on the roots of grass and wheat,—in fact are not discriminating in their tastes, for the tender roots of almost all plants, including the strawberry, have to contribute to the support of these plump larvæ. As the short-horn men say, "They are good feeders," and especially during the last two years of their subterranean life, quickly destroy whatever comes in their way.

When fully grown, the white grub (*see 2 fig.*) is about one and one-half inches long, white in color, with a brown head. They have a somewhat wrinkled appearance, and when disturbed, curl up. Dr. Harris states that in winter these larvæ descend beneath the action of frost.

In May, during the third season of growth, the pupa (*see 1 fig.*) may be found in a cell of earth, looking much like the imago, though the color is much lighter. As with all coleopterous pupa, the wings and legs may be seen folded up on the breast. During the months of May and June, of the third year, the beetles will again appear.

My friend, Dr. J. B. Barnes, of Owosso, who has grown strawberries extensively for a series of years, pronounces the grub their worst enemy. Mr. Nolan, of Benton Harbor, concurs in the opinion. Mr. B. Hathaway bears similar testimony, and further adds that this white grub is becoming a serious pest, and asks for a remedy.

REMEDIES.

No doubt but that the natural remedies, chief among which are the birds,—especially the robins, blackbirds and jays,—must, at present at least, take first rank. The skunk also does good service in this direction. Several ground beetles prey upon them while in the larva state. As with cut-worms, I believe it would be well to plow the ground sometime before planting, and leave it for a time to the fowls and birds. Hogs, where they can be admitted to the ground, will do a good work. Dr. Barnes states that if plenty of ashes, either leached or unleached, be placed on the ground before setting the plants, the grub will not trouble them.

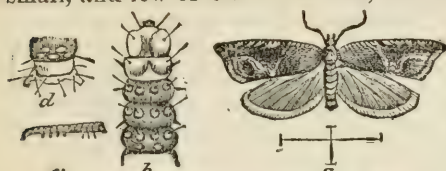
It has been recommended to crush these grubs by rolling the ground, when, by eating the roots of the grass, they destroy our lawns and meadows. From experiments which I have tried, I think this will do but little good. In such cases I think the better way is to convert them into pork, through the agency of swine.

Anchylopera fragariæ, Riley.—*Strawberry Leaf-roller*. Sub-order *Lepidoptera*.—Family *Tortricidæ*.

This family of moths, so well named leaf-rollers, are very destructive, the more so as their minute size, and perfect concealment, quite enable them to elude the closest scrutiny of those unskilled in their habits.

The moths are readily known by their primary or anterior wings, which are very wide at the base, making them nearly oblong. The larvæ are easily detected by their habits,—folding themselves in a leaf mantle, which they stitch with finest silk of their own manufacture,—after which they use this same garment for aliment, thus making the leaves of our various fruit plants serve

them both as food and raiment. Nearly all of the insects of this family are small, and few of our fruit trees, shrubs or vines escape their ravages.



Strawberry Leaf-roller.—a, Larva; c, Moth.

of the leaves, causes them to turn sear and die. They pupate in the same leaf, and by the first of July the reddish brown moth (see c in fig.) appears, which expands about one-half an inch. A second brood matures in September.

W. R. Strong, of Valparaiso, Indiana, lost in 1867 by this insect, ten acres of strawberries. Illinois has also suffered greatly from them, as has Canada.

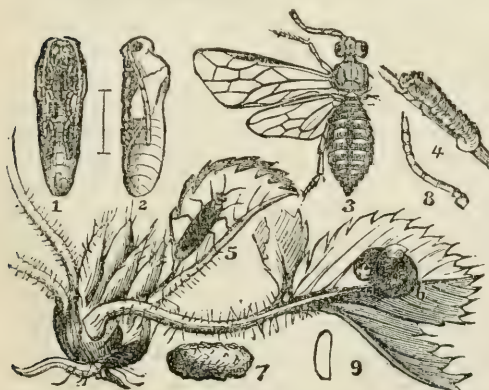
While so far as I can learn this insect is not yet in our own State, still it may be; as the sun-burnt appearance of affected leaves may lead to an erroneous view as to the origin of the evil. The following, received a few days since from Dr. Barnes, of Owosso, may refer to this insect: "There is another insect that has given me some trouble. Before I am aware of it there will be patches in the field, the leaves of which seem to be frittered away. I presume that the leaf-roller, as you call it, is the guilty party."

It behoves us to procure our plants from localities surely free from this pest. Prof. Riley thinks that plowing under plants that are attacked either in the spring or fall, when the insects are in the larva, or pupa state, would be sure to destroy them. It is a good practice, in summer, to pluck and burn the brown leaves that appear on our trees or vines, as in so doing we will destroy many leaf-rolling larvæ. This means might alone suffice in case of the insect under discussion if we had only to protect a small plat of berries.

These leaf-rollers on account of their secluded habits and great destructiveness, are greatly to be dreaded, as yet we are very ignorant of their habits and transformations; and it is greatly to be hoped, that we of Michigan shall have no occasion to enlighten the world especially as to the injurious species.

THE STRAWBERRY SLUG.

Emphytus maculata, Norton—Sub-order Hymenoptera. Family Tenthredinidæ.



Strawberry Slug.—1 and 2, Pupa; 3 and 5, Imago; 4 and 6, Larva; 7, Cocoon.

We are apt to think of Hymenopterous insects as exclusively our friends. Does not the bee industriously gather the tiny drops of nectar from every part of Flora's vast domain, canning them so wonderfully, that we may feast on ambrosia distilled from myriad flowers? Do not the wasps prey upon flies and bugs, thus freeing us from annoying pests? And who shall say how much we owe to the vast army of parasitic insects, composing the four Hymenopterous families: Chalcididæ, Ichneumonidæ, Chrysididæ, and Protoctrupidæ? Yet

there is one family of this Sub-order, the Tenthredinidæ or Saw-flies, which are great exceptions to the general rule. Few families in the whole order of insects offer so many or so grievous pests, as does this one. These slugs, as the larvæ are called, not only vex our good wives, by a total ruination of their rose plants, but no less the horticulturist, by destroying his pear and cherry trees, currant and gooseberry bushes, and blackberry and strawberry vines.

The saw-flies are so named because of the wonderful apparatus by aid of which are formed grooves wherein the eggs may be deposited.

Many of the larvæ are covered with slime, hence the common appellation,—slugs. These are easily told from all other larvæ by the number of abdominal legs,—there being often as many as sixteen, and never less than twelve. Caterpillars generally possess ten,—never more; thus the total number of legs in lepidopterous larvæ is never more than sixteen, while in those of saw flies there are from eighteen to twenty-two.

The *Emphytus maculatus* or strawberry-slug (*see 4 and 6, fig.*) has twenty-two feet, is of a yellowish color, shaded with brown. They perforate the leaves with minute holes, and when not feeding, rest on the under side, rolled up in form of a ring, and if slightly disturbed, fall to the ground. They feed in May and June, and when full grown are three-fourths of an inch long.

In June they descend into the ground, pupate in an earthen cocoon, and in July come fourth as a black four-winged fly.—(*See fig. 3 and 5.*) On the back of the abdomen are white spots.

The imagines pair, and the female, with her wonderful saws, forms an incision in the stems of the plant, and in this lays her eggs. The larvæ from these pupate in the fall, and issue as imagines the next spring; thus as with the leaf-roller, there are two broods a year.

These slugs are at work in various parts of the State, and may be readily detected by the innumerable small holes which they eat in the leaves.

Prof. Riley recommends working the ground in fall, and turning in chickens. Also shaking the larvæ to the ground and immersing them with a solution of cresylic soap. Should these become troublesome, I believe it will be well to use on the fall brood solutions of whale oil soap, white hellebore, or even Paris green. Some, if not all of these, would without doubt prove effectual.

Letters from Spring Lake and southward complain that the cut-worms are very destructive to strawberries, as well as everything else. I have nothing new to offer as to these greatest destroyers. The only way to resist them in our strawberry grounds, so far as I know, is to dig them out by hand, and to work the ground, calling to our aid the birds and fowls.

I think that the strawberry crown-borer, so admirably described by Prof. Riley, in our Report of 1871, is not yet among us, and very likely may not come. Yet we can not be too well informed as to all these destroyers, for with knowledge we shall be fortified to resist their first attacks, and it is then that resistance is most effectual. Nipping insect evils in the bud is by far the best way.

Mr. President, ladies and gentlemen:—I cannot close this essay without expressing my gratification, that this Society appreciates the magnitude of the impending evil which so threatens to subvert the agriculturist's prosperity, and is alive to the necessity of guarding against noxious insects, by a full discovery and dissemination of all the truths connected with their wonderful natural history and marvelous habits.

GARDEN AND WILD FLOWERS.

AN ESSAY BY MRS. JEREMIAH BROWN, OF BATTLE CREEK, READ
BEFORE THE STATE POMOLOGICAL SOCIETY AT ITS
MEETING FEBRUARY 26TH, 1873.

MR. PRESIDENT,—As a lover of flowers I feel it in my heart to thank this association for its recognition of their “right” to be represented on this occasion.

One would think that Pomology and Floriculture should ever go hand in hand, for the good Father has so ordered it, that all fruits shall be preceded by flowers, and they in the most exuberant abundance of exquisite beauty and inimitable arrangement. God could have given us all our fruits from only plain, dull colored flowers. It needed not the delicately tinted and finely textured blossom of the peach to secure the luscious flavor of its fruit; nor was the tasteful clustering and artistic shading of the bouquets of leaves, buds, and blossoms with which our apple-trees are each year adorned, indispensable to produce that most useful fruit. The cherries, plums, and pears too, might just as well have resulted from groups of inconspicuous organs, as from their wealth of snowy blossoms. And yet I fear, with this impressive lesson yearly renewed to them, there are some of our fruit-growers who never think of having a flower-garden. They ask, “What is the use of spending time and money for that which will not pay?” Will not pay! That of course means that it will not put dollars and cents into their pockets. I would say to such, look at yonder display of apples; see the rich coloring, the delicate shading, the brilliant tinting laid there with God’s own pencil. It does not enrich their flavor nor make them more nourishing, neither does it serve to continue them longer in use. Why then are they thus adorned? Because it is the pleasure of Our Father in Heaven, to make beauty an essential element in all his creations. And how forcibly is this truth demonstrated, not alone in the rich and varied coloring of the fruits, but as well in the profusion and loveliness of the flowers of our fruit-bearing trees, shrubs, and plants. To the plodding utilizer this may seem only a waste of effort and material, to the philosophic thinker, it affords a lesson of transcendent worth. What is the *use* of flowers?—

“Uselessness divinest,
Of a use the finest.”

Surround your home with flowers and it will refine, polish, and elevate your family. It will educate your children into a knowledge of the tender loving care of God, who has spread over the whole earth these “day stars” to brighten and cheer the rugged pathway of life,

"To comfort man—to whisper hope,
 Whene'er his faith is dim:
 For who so careth for the flowers
 Will much more care for him."

A home with these beautiful surroundings, and, as a consequence, an attractive interior, inspires a higher and more unselfish love in children, and this unselfish *home love* will be a safeguard amid temptation, more potent than the most rigid code of morals to which you can train them.

This making home beautiful is, I admit, more especially the work of woman, but a woman has small opportunity for beautifying a home if a husband considers all effort in this direction a waste of time. God never intended we should be indifferent to, or neglectful of these loveliest, purest, and sweetest of all his bounties, for they come within the reach of all, as I will prove to you, and flowers are God's vicegerents, having a high and holy mission to perform.

"In the sweet-scented pictures, heavenly artist,
 With which thou paintest nature's wide-spread hall,
 What a delightful lesson thou impartest
 Of love to all."

Then

"Who shall say that flowers
 Dress not Heaven's bowers?
 Who its love, without us, can fancy—or sweet lore?
 Who shall even dare
 To say we sprang not there,
 And came not down that love might bring one piece of heaven the more?"

I believe many an overburdened housekeeper would prolong her life and find in the occupation an element of the purest enjoyment, if she would have a small flower garden and cultivate it herself. We may love flowers and enjoy them in a degree, if grown and cared for by another; but to fully appreciate what they can be to us, we must cultivate and watch over them ourselves. I know of what I speak in this matter of cultivating flowers. Being a farmer's wife, and commencing this life in a new country, having lived only in a city in earlier years, I was often toil and careworn, as farmers' wives many times are under such circumstances. When weary and discouraged I have gone into my garden, worked among my flowers, ministered to their needs, enjoyed their beauty and fragrance, and returned to my household duties refreshed, strengthened, and reinspired to bear the burdens that had fallen upon me, thanking God for this source of pure and refined pleasure.

"Blest flowers! there breathes not one unfraught
 With lessons sweet and new."

I feel sure that if to every school-house in our land there were attached a garden, where, at the proper season, teachers and scholars could spend a small portion of the time now allotted to study, it would be a source of inestimable benefit and pleasure in after years, and of incalculably more advantage than the smattering of botany now generally taught. Scholars would acquire an experimental knowledge of the wants and requirements of various families of plants, and a taste for and love of these sweet ministers of God, so bright and beautiful.

"Ye speak of human life,
 Its mystery—the beautiful and brief;
 Its endless fading midst the tempest strife,
 Even as a delicate leaf.

"And, more than all, ye speak
Of might and power, of mercy, of the One
Eternal, who hath strew'd you fair and meek,
To glisten in the sun.

"To gladden all the earth
With bright and beauteous emblems of His grace;
That showers its gifts of uncomputed worth
In every clime and place"

Eight months of the year, even in our severe climate, we may enjoy flowers grown in the open air. You may think this a wild assertion; but did any of you remember last fall, before stern Winter laid his embargo on the mellow soil, to plant in your flower beds a few bulbs of *Snowdrop*? If you did, the sun of "blustering March" will not fail to find the spot, the ice and snow will melt away from that "charmed circle," and before you would believe it possible for any plant to be warmed into beauty, fair, fragile-looking blossoms, white as the snow-rift that has parted to make room for them, are bowing their gracefully drooping heads, and from their emerald tipped chalices a delicate perfume is wafted on the air, a grateful incense to heaven. Before these "pretty firstlings of the spring" have faded, the snow and ice perchance have disappeared; then how soon the bright sisterhood of crocuses will burst upon your sight, making your flower-bed radiant with their white, gold, purple and violet; and as if to outvie each other in welcoming the spring, they spread their broad corollas at the kiss of the bright sun, and seem to utter a silent pean of "Glory to God in the highest!" If there is one who can look upon a bed of these bright emblems of hope sent to cheer us while the earth is bare and drear, and not cry in his very soul—

"Blessed be God for flowers!
For the bright, gentle, holy thought that breathe
From out their varied beauty,"

he is "past hope." And see the bees, those "busy marauders," how they revel in the rich golden feast spread for their regaling!

Before these "Spring's bright children" have departed, the pale-faced *Primroses*, emblems of modest worth, hold meekly up their white and roseate cups, filled with dewey nectar, a sweet libation for the Easter morning. Then come the early *Hyacinths*, "redolent of sweets," and *Pansies*, "that's for thoughts," and what tender, loving thoughts come to us from out their matchless beauty, decked in gold and purple that a queen might envy, and a perfume like a sweet breath from "Araby the blest." They are the flowers for all the year, for I have dug through the snow-rift and gathered from beneath it a basket of them to grace our table in mid-winter.

In April and May, hundreds among early blooming plants, bulbs and shrubs will be in flower. *Lilacs* in variety all should have, especially the white and Persian, *Snow Ball* and *Spireas*; if you have but one of these last, let it be *Spirea Prunifolia*, which sways in the vernal air its numerous wreaths of tiny double white flowers like fairy roses; the *Pyrus Japonicas* (flowering quinces), one with scarlet flowers and their coronal of golden anthers, brilliant enough to be called in poetry "Fairies' fire;" the other exceedingly beautiful, its delicate waxen petals just enough tinged with blush not to be pure white, the outer edges of them shaded with dark rose. Then there are *Daffodils*, *Jonquils* and *Narcissus*, so lusciously fragrant; *Iris*es, *Tulips* and an endless list of others, and of shrubs and plants a legion.

My aim is to name only a few as a hint to novices what a succession of bloom can be kept up, and come within the reach of all,—most of the plants so common they can be had for the asking. Of hardy annuals there are innumerable varieties. Many of these do best if beds are prepared and the seeds planted in the fall. All the others should be put in as soon as the ground can be brought to proper condition in the spring. Always have your ground in good order, and avoid planting small seeds too deep; many of the very small ones scarcely require covering. Never omit among the annuals the *Sweet Alyssum*. Once sown, it will always be ready to show itself and bloom until freezing weather, and morning and evening it “fills the air with pleasure by its simple breath;” *Sweet Peas*, too, are delightfully fragrant. By planting in the fall they will bloom all summer. *Phlox Drummondii* in varieties, double and single, *Zinnias*, *Portulacas*, the double ones very beautiful, all of them in a warm spot will create a noonday splendor, when other flowers are drooping in the tropic heat. The few I have named, with a bed of *Verbenas*, will make your garden gay until November. But you will be better satisfied to add a few perennial *Phloxes*, and some of the perennial *Larkspurs*, varying in color from white to brilliant blue, purple and red; if planted early, blooming the first year from seed. *Asters*, in variety, will greatly add to your garden, and by planting early and later in spring, or fall and spring, will give a long succession of bloom, amply repaying all the care you may bestow upon them. *Convolvulus Minor* and *Nemophilas* will be a pretty addition to your variety. China and Japan *Pinks* will live two or three years, blooming the first year from seed. A bed of *Forget-me-nots*, the blue in a rich soil, shaded from the noonday sun, is a constant bloomer,—the white blooming in early summer,—both perennials. And the *Lilies*! You must have a few of them at least, but never omit the delicate *Lily of the Valley*. Thriving in a shadowy nook in the shelter of its leafy shield, it holds its wreath of pearly bells, which, as the breath of twilight fans them, chime their odorous vespers on the dewey air. All the *Lilies* are beautiful, many stateliest among the stately, regal in adornment, and gorgeous as the productions of the Looms of India. The *Gladjoluses*, they are magnificent. “Not Solomon in all his glory was arrayed like one of these.” A few are indispensable, and by planting the bulbs at different times, a continuous bloom can be kept from July to November.

Dahlias, too, a few should mingle with the less pretentious plants. *Salvia Splendens* must never be omitted. Though a greenhouse perennial, it can be treated as an annual by planting the seeds in the house in March, or old plants and those raised from cuttings may be stored in a cellar free from frost, and be kept through the winter. No collection of flowers can afford to do without it. One well grown specimen is of itself an object worthy the warmest admiration; with its numerous scarlet plumes waving and tossing in the sunlight, it cannot but cheer and whisper of brighter hours to the saddest heart. I always provide for a plentiful supply of these most desirable flowers, by planting the seeds (which ripen freely) in pots in March, and covering them with a piece of window glass. They grow readily in a sitting room, and by transplanting into small pots as soon as large enough to remove, I have strong plants to set out when frosts are over. In August they are in bloom, constantly increasing in beauty, illuminating the garden with their brilliancy, until the frost, reckless of their splendor, ruthlessly dashes it out.

By all means remember the *Creepers*, endless in variety, always beautiful,

and nothing more adorns a dwelling or ground. A humble cottage, vine-wreathed and nestled amid flowers and shrubbery, gives to the passer-by a far higher sense of home comfort than the most imposing mansion that lacks these evidences of taste and refinement.

All the varieties of *Convolvulus* are handsome and desirable. *Honeysuckles* in variety, beautiful and very fragrant; most of them hardy enough to bear our winters. But of Creepers there are none that for gracefulness and beauty of long continuance can compare with the *Maurandia*. It retains its luxuriance long after our hardiest indigenous vines are sere or dead. I copy from my diary: "The supports of our low-roofed porch are wreathed and draped with that prettiest of creepers, the graceful *Maurandia*, which even now, November 29th, is green as in mid-summer, and is in all its summer luxuriance, contrasting so beautifully with its snowy surroundings, for every object about wears winter's spotless ermine. Where these vines are partially protected by the over-hanging roof, they sway in the chilly air their festoons of leaves and flower buds, which look as if ready to open with the first hour of sunshine."

It may not be generally known that the rose and scarlet *Geraniums*, and others of the harder varieties, can be taken from the ground, tied in bundles and hung roots up in a cellar free from frost, and be planted out, grow and bloom finely the following summer. They can also be raised from seed planted in the house in February, and will bloom the first season. A few of these brilliant, perpetual bloomers are needed in every collection. The early flowering *Chrysanthemum* will bloom here in the open air, but the later ones require a longer season; yet they are abundantly worthy of being taken up before the buds are injured by the frost, and will make your windows gay and fragrant until Christmas. Everybody should have *Roses*, and some should be perpetuals, blooming until winter. So fragrant and beautiful—

" Oh, there is music to the spirit's ear
In every sigh,
Heaved by the rose's bosom to the air
That winnows by."

You will observe that I have confined myself principally to such plants as can be raised without the aid of a hot-bed, for my object is to show that any one who has a plot of ground can have flowers. Before closing allow me to allude to our indigenous flowers, and express a hope that efforts will be made to preserve them, as before the relentless plowshare and ruthless scythe of the farmer they will disappear, and their beauty be lost to us. Twenty-five years ago it was an experience in the very perfection of landscape gardening, to ride through our uncultivated oak openings, sometimes amid a wilderness of flowers of rainbow hues, which loaded the air with fragrance; again 'neath the shade of delightful groves, where flourished the dainty blossoms that loved such quiet, sheltered homes, while loveliest lakes gleamed in the distance or sparkled and dimpled close at hand. One could sympathize with the untutored red man in his belief that in all this wondrous beauty was foreshadowed the "happy hunting grounds" of his prospective heaven, and they might well be ready to mourn with him that all of it must give place to the inexorable advance of the white man with his sweeping "march of improvement." (?)

Any one so inclined, can gather around them a rich garden of native flowers, by consulting a little their habits and the soil they love. I have plants that for years have flourished in my garden, which were transplanted from marshes,

the only care bestowed upon them was to give them a deep soil, with a little from their own native home. Permit me to name a few plants from which a slight idea can be formed by those who have given no attention to the subject, of the resources within the reach of every one who lives in the country. First comes the Christmas Rose (*Helleborus*), pushing its buds through the snow, which open in the warmth of a room; as soon as the frost permits, *Bloodroot* (*Sanguinaria*) throws up its snowy flowers, fair enough to grace any garden by this time; sheltered by mossy stones, or at the foot of ancient trees, clusters of bright Easter flowers (*Hepatica triloba*) laugh in the sunlight; then comes the numerous family of *Violets*, purple, white, yellow, and blue, one found in moist woodlands, of "fairyländ's own heavenly blue." These bloom far into May, and later if the season is cool and damp. In the groves and sheltered fence-rows the fair *Wind flower* (*Anemone*), shows its delicate flowers. In two instances I have found them perfectly double; one of these has been in my garden several years. *Phloxes* of various colors, one of an exquisite shade of blue; *Spireas*, *Eupatoriums*, *Thalictrums*, *Lobelias*; most conspicuous among them is the *Cardinalis*. These love cultivation and repay your care with a more abundant bloom. *Lilies* rich and beautiful. But among the loveliest of all is the fringed *Gentian* (*Gentiana crenata*), shy of cultivation, but worthy every effort to domesticate it. It is a biennial, and the seeds do not come up the first year. I am bewildered by the endless list which presents itself to my mind, and yet I have not named a creeper of all the host that abound in every thicket, drape every hedge row, and shed beauty and grace on every blasted tree trunk. Shrubs and small flowering trees too, are found everywhere. When one becomes interested, they find them upspringing to their hand, these

"Bright missals from angelic throngs,
In every by-way left."

Of small trees let me name one, though a long catalogue could be given of those desirable. Our native Crab apple, symmetrical in form, rich in foliage, lovely in its abundance of flowers which fill the air with delicious fragrance, should have a place in the choicest collection.

"Think of all these treasures
Matchless works and pleasures.
Every one a marvel, more than thought can say;
Grossest hand may test them,
But may prize them never,
Yet they rise, and rise, and rise—marvels sweet forever."

When I think of the goodness of God, in spreading so widely and lavishly these beautiful evidences of his care and love, I cannot bear that one should remain indifferent to them. From the frozen north to the equator they beam upon us; from the wayside, the quiet dell, the margin of the placid lake, by the borders of the rippling brooklet and along the banks of the laughing stream, each spot is brightened by their presence. Beneath the dim arches of the forest, wherever a ray of heaven's light can penetrate, some sweet blossom is upturned to greet it. From the valley to the summit of the cloud-clapped mountain! aye, aye, to the very verge of Alpine glaciers, fair, delicate, fragrant flowers are scattered by the Divine hand.

"Leaning their cheeks against the thick-ribbed ice,
And looking up with brilliant eyes to Him
Who bids them bloom unblanch'd amid the waste,
Of desolation."

If this, my earnest plea for these "sweet smiles of God," shall awaken in one heart an interest for them, I shall feel that my effort has not been in vain.

"Your voiceless lips, O Flowers! are living preachers,
Each cup a pulpit, and each leaf a book,
Supplying to my fancy numerous teachers
From loneliest nook.

"Ephemeral sages! what instructors hoary
For such a world of thought could furnish scope?
Each fading calyx a *memento mori*,
Yet fount of hope.

"Were I, O God, in churchless lands remaining,
Far from all voice of teachers or divines:
My soul would find in flowers of thy ordaining
Priests, sermons, shrines!"

NEW VARIETIES OF FRUIT.

REPORT ON NOMENCLATURE OF FRUITS.

To the President of the State Pomological Society :

SIR,—The Standing Committee on Nomenclature of Fruits, to whom, at the December meeting, the question of the names and identity of certain fruits were referred, respectfully submit the following report :

HILL'S CHILI.

The peach grown in Michigan under the name of Hill's Chili, does not appear under that name in any of the standard works on fruits, so far as your committee have been able to discover. A variety appears under this name, however, in the catalogues of some eastern nurseries; and your committee for present purposes assume this to be the leading name.

Stanley's Late was brought from the East by a Mr. Stanley; and was budded from his garden by the late Eleazer Morton, of Benton Harbor, during the earliest days of fruit culture there. This, together with Sugar, Jenny Lind, Leopard, Queen of Sheba, and also Seagrove's Smock, of Spring Lake, are believed to be identical with Hill's Chili.

Many years since, the late General Cass, of Detroit, brought pits (or possibly cuttings) of peach from Brittany or Normandy, France, and from the product, gave trees to John Haskell, which were planted on Genesee Prairie, near Kalamazoo, in 1831. A branch of one of these trees remains alive, from which the variety has been propagated under the name of Cass peach. This is, to all appearance, also identical with Hill's Chili; and, even if of distinct origin, appears to be indistinguishable in tree, and also in fruit, and hence, under the rules of the Society, is not entitled to a distinct recognition; certainly not unless further examination or inquiry shall determine that its name is of earlier origin, and hence entitled to precedence.

THE BARNARD.

Barnard, as cultivated along the lake shore, was obtained, by Mr. Geo. Parmelee, from a nursery in Western New York; and is supposed, by your committee, to be identical with the Barnard described in Thomas' American Fruit Culturist; hence the prefix "Early" should be dropped. Mr. Parmelee received it under the name "Lemon Cling," but finding it a freestone, he dropped the word cling, calling it simply "Lemon."

Snow's Orange, which is also apparently identical with the Barnard, was introduced by Mr. Hall, of Paw Paw, by budding from a tree in the garden of

Mr. Snow of that place. Mr. John Smolk states that he raised this tree from pits of premium peaches procured at a fair in western New York,—he having originally owned the Snow place and planted the tree there.

The President of the Society, to whom the committee are indebted for the preceding facts, farther states that he procured trees from western New York as Early Barnard, which prove identical with the foregoing, both in tree and fruit, except that the fruit is smaller in size, and ripens somewhat later.

THE HONEST JOHN.

Honest John, of lake shore growers, is believed to be identical with the yellow peach grown under that name in western New York.

It is a fact, well known to pomologists, that there are several varieties of peaches which, from some exceptional cause, retain, as do most fruits in their wild or natural state, the capability of transmitting their peculiarities to their offspring, through their seed, with a greater or less degree of certainty. Among these the old Alberge, and also the Red Cheek Malocoton are noted cases. The Barnard, and also the Yellow Honest John, are thought to be seedlings of Alberge, and if such, they seem to have inherited a degree of this same power, and we are the more inclined to accept this assumption for the reason that there seems to be no more probable way of accounting for the apparent identity of fruit, which, like some of those noticed in this report, seem unquestionably to have had a distinct origin.

Your committee would further remark that their work, so far as the above varieties are concerned, can hardly be considered complete till they shall have been able to make examinations and comparisons of foliage and fruit during the seasons of growth, and to prepare descriptions of each, in definite pomological terms, such as shall suffice for the determination of the question of their identity with varieties grown and described abroad under the same or similar names.

THE KEYPORT WHITE.

Keyport White, which appears in the list of peaches recommended by the Society, is stated by Mr. Charles Downing, in a recent letter received from him, to ripen about the same time as La Grange, and not, in his estimation, to be any improvement upon that variety.

Wheeler's Early Peach is not described or noticed in any of our standard pomological works.

THE FOSTER PEACH.

Foster Peach will be found described in the Journal of Horticulture, and also by Downing in an appendix to his latest revised work on fruits, recently issued in pamphlet form, as follows:

Originated with J. T. Foster, Medford, Mass. Tree said to be hardy, vigorous and productive; a good market variety.

Fruit large, slightly flattened, with a slight suture, stem moderately depressed; flesh yellow, very rich and juicy, with a pleasant sub-acid flavor; free, stone of medium size; color a deep orange red, becoming very dark red on the exposed side. Ripe from the middle to the last of September.

THE PAW PAW APPLE.

The Paw Paw apple originated at Paw Paw, Mich., from seed sown by Mrs. Ball of that place. It was exhibited as a seedling at the second meeting of the Michigan State Horticultural Society held at Kalamazoo, on Thursday,

Jan. 7th, 1858, by B. Hathaway. It was favorably reported upon by the Society's committee, and at the suggestion of Mr. Hathaway, received the above name from the place of its origin. It was described under this name and such description published in the *Michigan Farmer*, Vol. 16 at page 49.

This fruit has also been somewhat known as the Ball apple, doubtless from the name of the originator.

It has also been considerably disseminated from a local nursery under the name of Rubicon; and we learn that it has also become known (in Wisconsin if we mistake not), as Western Baldwin.

A very full history of this apple was a few years since published in a Paw Paw newspaper, a copy of which was sent to the chairman of this committee and was by him forwarded to Mr. Chas. Downing, but as no copy was retained we are obliged to rely upon memory for the above facts. This history became the source whence Mr. D. drew the notice of his fruit, which will be found at page 299 of the latest revised edition of his work on fruits.

THE ROMANITE.

During a visit to our State, two years since, Mr. Downing's attention was drawn to an apple long known in eastern Michigan as Romanite, which, on account of its keeping qualities, together with its hardiness and great productiveness has proved very profitable; although it should be added, that it is never really fit to either eat or cook, and only sells in the market after other and better sorts have disappeared. Circumstances created the impression that it might prove indetical with a fruit somewhat grown at the west as Black Vandevere; and partially for the purpose of solving that question, specimens were last fall sent to Mr. Downing, without, however, settling the above question. Recently, during a visit to his place by F. R. Elliott, of Ohio, an examination of these specimens was had, of which Mr. D. writes as follows: "Elliott says it is the same as May Seek-No-Further of Downing's new edition, page 270, and he has known it in the west for many years, and has a tree of it on his grounds that brings him more money every other year, than the same space of ground of anything else he cultivates; but says the fruit is worthless to eat or cook. He also says the tree is a very upright grower, until it is quite old, when it droops a little at the ends of the branches."

The above so perfectly describes and characterizes the tree and fruit as grown in eastern Michigan, that we are entirely satisfied of the correctness of Mr. Elliott's conclusion.

We may add, that the tree is one of the most satisfactory in both the nursery and orchard; it being upright, vigorous, healthy and eminently hardy. If it is desired to employ root grafts as stocks on which to top work less hardy or vigorous varieties it is confidently believed that no other variety will be found superior, or even equal to this, for such purpose.

T. T. LYON, *Chairman.*

BATTLE CREEK, February, 1873.

FRUIT GROWING AT SOUTH HAVEN.

PRESIDENT PHILLIPS' SECOND ANNUAL ADDRESS, READ BEFORE THE
SOUTH HAVEN POMOLOGICAL SOCIETY, DECEMBER 30, 1872.

GENTLEMEN,—The year 1872 has almost passed, and, according to our rules, this evening closes the official duties of the officers elected one year ago to-night; and this evening, too, is for the election of a new set of officers to conduct the affairs of our local Society for the year 1873, and it is no common favor to be chosen by such a people as we see enrolled as members of the South Haven Pomological Society, to places of honor and trust. We, as a Society, are two years old. Does any one present claim to know the amount of good that has been accomplished in that time, both directly and indirectly, by those of us who are steady at their post as the needle to the pole, ready with their time, money and experience to carry out the laudable object for which we were organized? Although we are so young, and came from so many States, we have, by our friendly interchange of thought and experience, formed friendships I trust never to be broken. Our very occupation is calculated to unite us in one common brotherhood, for who among us does not bring forward his best fruits when his fraternal friends call for mutual interchange of thoughts, feelings and experiences of our success, prosperity and expectations, or failures, from want of knowledge of tree, vine or plant adapted to our particular soil? Co-operation of individuals, as well as societies, is calculated to instruct and inspire each of us to greater zeal and activity in the production of all the finest fruits that can be successfully grown in this, our favored location. As this eastern shore of Lake Michigan is so well adapted to the growth and perfection of so many varieties of the more delicate fruits, it becomes us as fruit-growers to learn of each other of the things that pertain to Pomology.

Surely God has not placed us here in the midst of such a fruit-growing section, with such a soil, climate, harbor and market, without some good design.

What have we accomplished in the year 1872?

By our united effort and influence a splendid Pomological Hall has been built on the Public Park, and dedicated to the interest of Pomology and kindred sciences.

By invitation, the State Pomological Society have held a very interesting and instructive meeting among us, and many valuable acquaintances and friendships were formed.

We have grown, collected and exhibited our fruits at the Great Union Fair, held at Grand Rapids, and after a careful examination the committee awarded

the first premium to Van Buren county. The State Orchardng Committee justly awarded a large percentage of premiums to members of our Society for the best in the different classes. On home adornments our genial friend, Rev. Dr. Hewson, took the first premium. At our two County Fairs the green, canned and dried fruit of our Society was the center of attraction, and justly received the first premium for greatest collection.

I might mention many private enterprises, such as the steam canning process of F. I. Parks, the new drying process of John Williams, the successful growing of figs by H. E. Bidwell, and the thorough thinning of peaches practiced by State President A. S. Dyckman. We, as a society, are better posted as to the different varieties of fruit adapted to our location; the pruning of tree and vine; the cultivation of soil; the destruction of injurious insects, and the best mode of putting up and marketing fruit, than we were one year ago to-night.

Our trade-mark has made its way into many markets, and orders have been received for certain amounts of trade-mark fruit each day, with the price affixed, a thing not common among commission men. I am happy to state that no member has used that mark on any but No. 1 fruit. By the State Society being held here, by our superior fruits sent to the fairs and to the markets, by taking the county premiums two years in succession, by our Pomological reports, our town is now known from the Atlantic to the Pacific. Let us continue to work together, and develop the natural resources of our land, and we need not fear for the results.

Let me here return my sincere thanks to those who assisted in making the State Society held here a success, and especially the ladies who entertained the officers and visitors, and made them so welcome at their homes, thereby securing their lasting regards and friendships.

I cannot close without referring to the fact that so many among us are making their homes beautiful by planting ornamental trees and flowers. When each home in this fruit-growing land shall thus be made beautiful, with our fertile soil and temperate climate, we ought to be content.

Long may the members of this Society meet together as friends and mutual helpers, receiving and dispensing good; and may our efforts in promoting this most beautiful of all arts, this health-preserving and life-prolonging industry be crowned with continual success until every fireside shall be gladdened with the golden fruits of summer and autumn, until thanksgiving and the perfume of the orchard shall ascend together like incense from the altar of every family in our broad land.

OFFICERS FOR 1873, OF THE SOUTH HAVEN POMOLOGICAL SOCIETY.

Norman Phillips, President; C. H. Wigglesworth, Vice President; Chas. T. Bryant, Recording Secretary; H. E. Bidwell, Corresponding and Financial Secretary; Chas. J. Monroe, Treasurer; D. B. Williams, Librarian.

EXECUTIVE COMMITTEE.

B. H. Dyckman, Geo. L. Seaver, D. C. Loveday.

The objects of the South Haven Pomological Society are to develop facts and promulgate information as to the best varieties of fruit, and the best methods of cultivation.

ADDRESS OF J. E. BIDWELL, DELIVERED BEFORE THE SOUTH HAVEN
POMOLOGICAL SOCIETY, FEBRUARY 8, 1873.

South Haven is beautifully situated on the eastern shore of Lake Michigan, fifty feet above its level, with a rising undulating surface backward, so that from many places you can see a thriving eight-year old village at your feet, and the broad lake specked with numerous vessels spread out in the dim distance. Should chance find you there at early dawn you might see long shadows running down to the lake shore and lost in the water, or tracing out the course of the river you can see it running out between two piers with extending arms to welcome the returning vessels. The sunsets at South Haven are very beautiful, with the ever changing rainbow colors on the horizon. If you love grandeur, here contemplate the great breadths and depths of Lake Michigan, with its ever restless waters; or, admiring and contemplating the glorious, consider the departing day with its expected return on the morrow.

Commercially, South Haven is favorably located at the mouth of Black river, —whose dark waters are stained with the dissolution of mineral deposits, and the decay of original forests and their annual foliage, replaced with thriftier trees in great variety,—from which many vessels are now annually laden with rich cargoes of choice lumber, wood, and timber, consisting principally of beech, whitewood, walnut, cherry, oak, maple, pine, and basswood, and conveyed across the lake to Chicago and other lake cities, to finish and warm their beautiful cottages and splendid mansions, their palatial stores and other commercial buildings; their numerous lines of railway and vessel, all assisting the growth and prosperity of our great Northwest. South Haven is also the terminus of the Kalamazoo and South Haven Railroad, connecting a few miles out at Grand Junction with the Michigan Lake Shore Railroad, and at Kalamazoo, forty miles distant, with the Michigan Central and other important lines of railway, pointing in every direction. South Haven is also connected by steamer and vessel with Chicago, sixty-eight miles distant, S. W., and Milwaukee, ninety miles across the lake, N. W., connecting with steamer for Detroit, Cleveland, and Buffalo eastward.

The country adjoining the village of South Haven is favored by nature, with the greatest conceivable variety of soil and exposure, including light sand and heavy clay, or rich sand, gravel and clay loam, separate, or mixed in every conceivable proportion, or all combined in the most desirable compound, including all necessary vegetable or mineral properties required by the particular appetite of certain plants, for their peculiarly constructed organization, or by those exacting a portion of all covering deep slopes, undulating tracts, dry level prairie, or moist bottom lands, which the winds and waters of past ages have separated, or mingled in different proportions, so that no kind of soil or situation could be desired without finding it readily and at a reasonable price. In fact, all departments of agriculture, from the least even to the greatest, can be successfully carried on here, from flourishing vegetable gardens, prosperous wheat fields, verdant meadows, to permanent orchards. True, there is necessarily some poor land, but the proportion of good is tenfold greater, and the very good even tenfold greater than the good.

The climate of South Haven, with its due proportion of heat, light, and moisture, is providentially well nigh perfect for the complete development of all vegetables, grains, and fruits, grown in the temperate zone, with an average

summer temperature of seventy degrees, sufficient to mature the latest corn, potato, or apple; seldom going above ninety degrees, to cause premature ripeness, nor rarely below fifty degrees to retard growth; with an average winter temperature of twenty-five degrees, rarely going above fifty degrees to start the latent sap, nor seldom below zero to kill the tender bud; exempt from late spring and early fall frost; in fact, we have not missed a crop of even tender peaches since they first came in bearing, seventeen years ago. Even with this remarkably cold winter our prospects are good. Unquestionably our climate cannot be surpassed for its uniformity of temperature, rarely exceeding twenty degrees' variation in one or two days; this is of great practical value to fruit culture, in the uniform growth and ripening of wood and fruit. It is a remarkable fact that much of the intrinsic value of fruit lies in its perfect maturity. The peach, pear, and even apple, if subject to extreme cold or hot spells in ripening, is comparatively sour or insipid in flavor. Nor is the light of summer too glaring or obscure to destroy or dim the formation of the beautiful rainbow colors divided by the delicate prisms of aërial moisture, deeply imprinted by the active rays of the sun handsomely painting the delicious green pear, the golden yellow peach, and the rich red apple. Nor is the moisture deficient to produce inferior size, shrinkage, or wilt, nor in excess for the perfect development of vegetable, grain, or fruit. These good and lasting results are mainly due to the great length, breadth, depth, and position of our lakes, which constantly evaporate, expand, and raise in summer, cool, moist vapor to be gently distilled upon us at night, or showered upon us by day in seeming accident, but through great design; even in winter the restless waters rapidly absorb the cold, contract and settle, and are as quickly replaced by the warmer waters from below. Fresh water is easily influenced by slight atmospheric changes, one cubic foot of which will affect in one like degree of temperature over three thousand cubic feet of air; how great then is the influence of Lake Michigan, three hundred and forty by eighty-five miles in extent of surface, and upwards of one thousand feet in depth? Our prevailing winds are from the west, principally southwest, and come under the equalizing influences of water. Who can estimate the quantity of imperceptible vapor rising from sixty-six thousand square miles of fresh water in extreme warm weather in summer, and those immense cloud-like masses of dark vapor rising from the unfrozen surface in extreme weather in winter, extending its beneficial influence over our beloved State, so that the largest proportion of our vegetables, grain, and fruit, are increased with lavish stores of vegetable and mineral decay amply moistened from the constant evaporation of our lakes, richly sweetened, and beautifully painted with warm mellow sunlight, a faint retrospective view of the original paradise being brought about by the diligent labor of man.

We are justly proud of Mr. Dyckman's delicious Barnard peaches over twelve inches in circumference, of the late Mr. Eame's excellent Duchesse pears, nearly thirteen inches in circumference, and Mr. Bailey's fine Northern Spy apples over thirteen inches in circumference.

Step back with us twenty years ago, when the numerous tribes of Indians on the lake coast made their yearly visits to South Haven and vicinity in whole fleets of canoes attached to a mainmast and one sail, when the wind was favorable, using their paddles in a calm, a portion staying all winter in the woods hunting porcupines, wolves, deer, and bears, and in spring making their yearly supply of maple sugar, a part of which they would sew up in birch bark bags with sinews, to bury in the ground for next winter's supply, taking the

remainder home for summer use. In the spring, after sugar-making, they planted small patches of corn in the open places, called squaw-corn by the whites, because they did the work; this was ready for harvest when they returned for their winter hunting. But I have heard that we were losing our greatness in the destruction of our forests. We can gain greater supremacy in replacing them with thrifty orchards and smiling vineyards, producing abundant fruit instead of forest leaves, and what is measurably true concerning South Haven, is remarkably true concerning all of Van Buren and a portion of Allegan county. Van Buren County to-day stands first in market from the superior excellence of her vegetables, grain, and fruits. Van Buren County potatoes, wheat, and apples, command the very highest price; this is due to the superiority of her soil, the uniformity of her climate, and her good marketing facilities. We are justly proud of our present position; we are even more proud of our future prospects. The extent of our original forests foreshadow what may be the future greatness of our orchards; formerly nearly every acre was covered with dense timber, showing its adaptability to grow fruit trees. The facts are more convincing: let me cite you to the thrifty young orchards springing up in the new clearings of the northern and western portion of the county to show the willingness of our soil and climate to grow trees, and the luxuriant old orchards in the eastern and southern portions for their ability to maintain them; add to them superior cultivation, which will follow through the influence of the South Haven and State Pomological Societies, then will our orchards remain a lasting benefit to us and our posterity. As an evidence of the beneficial influences of our Pomological Society I might mention that our orchards have improved one hundred fold in the two years of its successful operation; our members have steadily increased; in truth our anticipations are more than realized. Who among us one year ago could have thought that in two weeks last fall we could have built a fine Gothic Pomological Hall forty-four by one hundred feet? Imagine, who can, what lies in the glorious future. But we are not alone to enjoy the fruits of our labor. The recent discovery of the "*Williams process*" of preserving fruit by one of our co-laborers, opens a world-wide market for the unlimited production of the whole State. The process simply consists in removing the water, which is returned in soaking when needed for use; fruit preserved by this process is equal to fresh fruit for all culinary purposes. Our choicest fruits dried by this process is equal to the finest imported. The nurseryman, and in turn the fruit grower, is benefited by this use of superior fruit, as it furnishes the means of collecting superior fruit tree seed, by which the health and vigor of our orchards can be increased.

There is a known difference in the thrift of seedling trees which comes from the difference of the seed itself. Let us a moment carefully consider how this is produced. Place peach, pear or apple seed in the best of soil, which should include sand, gravel and clay loam mixed to contain all vegetable and mineral ingredients,—if lacking, supply the deficiency,—giving ample ventilation above, and complete drainage below. Give to them our most uniform tempered climate, agreeable to their vital temperament, in which to make their most perfect growth, an average summer temperature of seventy degrees for the apple, seventy-five degrees for the pear, and eighty degrees for the peach; these can all be found in suitable soils and exposures. The less the extremes the better; these can be lessened by mulch and wind-breaks. Give, also, due light and sufficient moisture; increase the strength and vitality of the seedlings by

crown-grafting or budding with the most vigorous stock, such as hard shell almond for peaches and apricots, Buffam and Vicar pear for pears, and Northern Spy apple for apples and crab. When well established, top-graft or bud with the most perfect varieties of fruit, prune carefully, and thin judiciously, and fertilize the blossoms from similarly perfected trees, covering all known defects in the union ; this will improve and perfect our stock fruit and seed.

With gratitude to Russia for her beautiful red Astrachan apple, and just praise to France for Van Mon's rich Beurre de Anjou pear, and good will to England for River's delicious peaches, giving God all thanksgiving for our bountiful soil and delightful climate, we humbly ask for more Pomologists, more capital, and more labor.

FRUIT CULTURE AT GRAND TRAVERSE.

BY SANFORD HOWARD, LATE SECRETARY OF THE STATE BOARD OF AGRICULTURE.

To illustrate the progress of fruit culture in the Grand Traverse district, the following description of that section is introduced. Mr. Howard visited Grand Traverse in the month of June, 1867, and he published these notes in his report for that year. By comparing what he here says with the splendid exhibitions of fruit brought by Mr. Parmelee and others from that section, which have been made at the meetings of the Society, it will be seen that Mr. Howard's predictions have been more than verified and fulfilled:

EXEMPTION FROM SPRING AND AUTUMN FROSTS.

The exemption of this section from autumnal frosts is, as may be supposed, one of its most striking features, and adds greatly to its value in reference to agricultural and horticultural products. Corn, of the flint varieties, is considered sure to ripen if planted any time before the tenth of June; and varieties of grapes, as the Catawba and Isabella, which are very uncertain in regard to ripening in the open air, in the central and southern portions of the State, have, for several years in succession, ripened perfectly as far north as forty-five degrees. The instances alluded to will be particularly mentioned in another place.

But it is not merely in the fall that vegetation is here exempt from injury by frost; it is seldom injured in spring. The snow holds everything in check till warm weather comes in earnest, and then the development is rapid. Fruit-germs, even of tender species, are seldom injured in winter. The greatest degree of cold registered at Traverse City or Northport, is 15 degrees below zero, and that but few times within the past eight years. On the peninsula which divides the two branches of Traverse Bay, it has not been so cold. At Old Mission, the lowest point marked within the past four years is nine degrees below zero, and that only once and for a short time. With this exception, seven degrees below zero is the lowest the mercury has fallen.

SUCCESS OF PEACHES AND OTHER FRUITS.

The result is that peach buds are seldom injured by the cold, and the peach crop is considered as certain here as at any point on the eastern shore of Lake Michigan. Nearly all the peach trees seen by the writer, in his late excursion through the region, which were old enough to bear, were fairly set to fruit. Starting later in the Spring, they are of course later in ripening; but persons who have been acquainted with peaches grown at St. Joseph and various other

parts of the country, stated that they had never seen finer specimens of this fruit than are produced in the Grand Traverse region.

More time is required for apple trees to reach a bearing condition; but there are examples enough to prove that the trees will grow well and produce well. The oldest trees are those planted at the French missionary stations. The Indians obtained seed or young trees from the missionaries, and in some instances they have attained a large size, and have borne fruit for many years. None of these French or Indian trees appear to have been budded or grafted, though some of them produce good fruit. The oldest trees are still healthy and productive. Those planted by Indians have grown altogether in a natural way, and were never pruned.

On the farm belonging to the late New Mission Seminary,—the Institution is now abandoned,—there is a large orchard which has been planted fourteen years, and has for several years, previously to the last, produced good crops. The trees are very large of their age, although they have never been manured. All persons who have seen apples grown here unite in saying that they have never known them surpassed in size or flavor. The crop failed last year; but this year there is a prospect of a good yield.

Young apple orchards, from those of this spring's planting to those of four or five years old, are numerous, and many of them of very fine appearance. Mr. Perry Hannah, of Traverse City, has one of several years' growth, comprising forty acres, which is very promising. It is on the first slope of the highland that rises from the sand-plain on which the town stands.

Pear trees have not as yet been planted to much extent. On the grounds of Rev. George N. Smith, at Northport, there are several very fine trees of different varieties, in a bearing state, the young fruit being handsomely set on the 18th of June. These trees have produced fruit for several years, the quality said to be very fine. There are also several fine trees, in bearing condition, on the grounds of Rev. Mr. Dougherty, at New Mission, and on the Seminary grounds before mentioned. In the garden of Rev. Dr. Walker, of Benzonia, are some as fine pear trees as can be found of their age in any part of the country. They comprise several choice varieties; have borne for several years, and the fruit has been pronounced of the finest quality by persons competent to judge. On the grounds of John Canfield, Esq., of Manistee, there are numerous pear trees, both dwarfs and standards, of from two to six years' growth from planting, many of which are models of beauty.

On the whole there is good reason to believe that apples, peaches and grapes will generally do well here, and that their cultivation may be made remunerative. Pears will probably succeed in some localities, which will be more particularly designated as we proceed.

In regard to apples, no reason can be seen why the trees should not as productive and as long lived in this section as in any part of the country, or in the world. That the fruit will ripen perfectly there seems to be no doubt. From causes already stated, they will ripen later in the season; but this will give them advantages in reference to late keeping, and will enhance their value for the spring market. It is well known that winter varieties of apples at the north are in some cases autumn varieties at the south, and will keep there but a short time. For this reason apples produced in Maine will sell higher in New Orleans, in spring, than those grown in Ohio. The further north apples can be grown, or the later they are in ripening, provided they do fully ripen, the later they will keep in the spring, and the better will be their quality. We

are informed that apples taken from the vicinity of Northport to Chicago, in spring, have been pronounced superior in quality to any others of the same kinds in that market.

In regard to grapes, the oldest vines in this section appear to be perfectly healthy. The calcareous matter in which much of the soil abounds, seems to render it well suited to the grape. Judge Fowler, on the peninsula, twelve miles below Traverse City, has vines of the Isabella grape which have not failed to produce large crops of perfectly ripened fruit for the past eight years. His son, living two miles further down the peninsula, has vines of the same variety, which in a more exposed situation, and with less attention to pruning, have produced well-ripened fruit for several years in succession. On the grounds of Mr. Marshall, near Old Mission, there are fine vines of the Catawba, Isabella, Concord, Delaware, Iona, etc. Mr. John Drew, formerly of Detroit (father-in-law of Mr. Marshall), states that the Catawba has not failed to ripen perfectly for the past four years; that he has compared the fruit with the same variety produced at Kelley's Island and points on the shore of Lake Erie, and that no difference can be perceived in the quality.

At Old Mission, Mr. Parmelee, formerly engaged extensively in fruit culture at St. Joseph, has lately bought a tract of land to be devoted, principally, as stated, to peach and grape culture. Other persons from the place mentioned, and other sections, have lately bought land here to be devoted to similar purposes. It is reasonable to suppose that a person of the experience of Mr. Parmelee would not be very likely to make a mistake in the selection of a locality for the business he designs to pursue.

Another man who has lately bought land here, proposes to establish a cranberry plantation. At the distance of a mile or so from the shore of the bay there is a small lake, from which there is considerable fall towards the bay. It is proposed to plant the cranberry vines between the lake and the bay, and water them to any extent that may be needed from the lake.

At Northport and New Mission Rev. Geo. N. Smith and Rev. Mr. Dougherty have fully demonstrated the practicability of ripening perfectly any varieties of grapes that are grown in the south part of the State. Indeed, so well established is the fact that good grapes can readily be grown here, that many persons are setting out vines, and in every instance that came under the writer's observation vines of proper age which had received suitable care had put forth an abundance of blossoms or young fruit for the present year.

Plums have done well in many instances in this section. Thus far the fruit has neither been attacked by the curculio, nor the trees by that insidious and destructive fungus, the "black wart," from which this species of tree has of late years suffered so greatly at the East. The plum, however, like the pear, generally succeeds best in soils which contain considerable clay, or especially where the subsoil contains considerable of this element; and if the curculio should reach this section, as it probably will sometime, the looseness which is a common characteristic of the soil here, will favor its propagation.

It is well known that pear trees thrive best when the roots extend into a soil of at least as much tenacity as would be called a clayey loam. A distinguished cultivator of pears in the State of New York, and the author of one of our most valuable treatises on fruit-culture, on being asked what kind of soil he preferred for pears, replied: "A soil so tenacious as to require underdraining." Experience and observation prove that with such a soil and proper cultivation pears flourish well. There are tracts of land of considerable tenacity in this section

of the country, on which this fruit will doubtless succeed. It is not intended to say that pears cannot be produced on lighter soil, but simply that soils of a somewhat tenacious character are best adapted to them.

The Secretary deems it proper to add, in this connection, that he received in November, from Rev. Geo. N. Smith, of Northport, very fine specimens of the Beurre Diel pear, grown in his garden. They were of large size and excellent flavor. Mr. S. also sent handsome specimens of several kinds of apples grown on his grounds, including Rhode Island Greening, Belle Flower, Westfield Seek-no-further, Newtown Pippin, Peck's Pleasant, &c. All the specimens were well grown, fair, and in every respect perfect of their kind. Mr. S. also sent specimens of the *dent* and several varieties of *flint* Indian corn—all well ripened, though the seed was planted on the second day of June. It was stated that the first frost to injure vegetation in the vicinity of Northport the present autumn, was on the 22d of October.

No reason appears why cherries may not succeed over nearly the whole of the Grand Traverse region. The comparative mildness and uniform temperature of the winter, together with the generally porous nature of the soil, may be regarded as favorable to the finer kinds of this fruit, or the so-called "heart" cherries. Several trees of these varieties on the grounds of Rev. Mr. Smith, of Northport, were handsomely set to fruit, and the trees appeared healthy and thrifty.

The smaller fruits can undoubtedly be grown here in abundance. Strawberries, however, requiring, as they do, much moisture, should be planted on grounds selected with a view to a supply of this element. In many instances there would be no difficulty in applying water by irrigation.

BIRDS.

AN ESSAY READ BEFORE THE MICHIGAN STATE POMOLOGICAL SOCIETY AT SOUTH HAVEN, SEPT. 4, 1873, BY MASTER L. H. BAILEY, A LAD OF FIFTEEN YEARS.

MR. PRESIDENT, LADIES AND GENTLEMEN,—When the rigors of winter are over, and the pleasant days of spring return, what is more charming and delightful than the presence of birds? What is more useful in destroying the myriads of insects which infest our vegetation? Each one, from the different kind of insects it destroys, is almost indispensable to every farmer and fruit grower. As to food, our common birds may be divided into three classes; first, insectivorous, or insect eaters, which include the blue bird, wren, swallows, nut-hatch, kingbird, and woodpecker.

The *bluebird*, which is one of the earliest comers and most beneficial of all our singing birds, feeds principally on cut-worms, grasshoppers, and beetles. Like the wren, he will build in most any little box put up for the purpose.

Next in order is that familiar little bird the *wren*. It subsists mostly on millers and larvæ; on account of its small size it destroys a good many insects which other birds do not.

The numerous *swallow* family feed upon beetles, mosquitoes, and other winged insects.

The *nut-hatch*, though not so well known as the preceding species, is one of our most useful orchard birds. You may see him creeping about the trees with head downwards, destroying every insect that comes in his way. He suspends his nest underneath a limb, and it is composed of fine twigs and the inside layer of bark.

The *kingbird*, or tyrant fly-catcher, subsists mostly on beetles, flies, and all sorts of winged insects. Observe him perched upon some old mullen stalk, capturing every insect that comes in sight, and see if he does not fully repay for the few bees he destroys.

The *woodpeckers* feed upon beetles and larvæ. They also destroy the apple tree borer.

Class second is called granivorous, or grain-eating birds, which include the thistle, or yellow bird, cedar bird, chipping sparrow, and ground bird.

The *yellow bird*, though not insectivorous, may be regarded as our friend. His food consists chiefly of the seeds of thistles and other weeds, thus destroying a great many noxious plants.

The *cedar bird*, or cherry bird as he is commonly called, feeds almost entirely upon fruit, although in the spring he destroys the canker worm. Nut-

tall says: "For hours together he may be seen feeding on the all-despoiling canker worm, which infests our apple and elm trees."

The *chipping sparrow* and *ground bird* live on seeds, bugs, and worms on the ground.

The third class of birds is called omnivorous, or all-eaters, which include the robin, thrush, lark, and cat-bird.

In the spring the robin destroys an immense number of cut worms and injurious insects. Later in the season he takes to fruit.

The *thrush*, or brown thrasher, feeds mostly on beetles, larvæ, and berries. The *lark* seems to subsist upon grubs, worms and seeds. The food of the *cat-bird* is mostly larvæ, pear slugs, and fruit.

Thus nearly all the noxious insects which infest our fields and forests are devoured. Thousands are destroyed in a day by these harmless songsters, yet the selfish man dooms them to destruction. But this is not all; they have powers of music unequalled by works of art. Their charming songs and beautiful plumage lend life and vivacity to the dullest place:

The robin sings sweetly from her native bowers,
The humming-bird sips the dewy flowers,
And the blue-jay's voice is often heard
From the forest, by fragrant breezes stirred.

The thrush, perched upon some lofty tree
That overshades the way,
Pours forth her song with joy and glee,
As if to welcome the coming day.

The lark's sweet warble from the grassy dale
Mingles with the lay of the cat-bird and quail,
And the chipping sparrows afford a charm
To the thicket as well as the farm.

The wren chants merrily from the spreading trees
That surround her home of delight,
She smooths her pinions in the passing breeze
And sings from morning until night.

The blue-birds warble from the orchards fair,
And the swallows twitter as they fly through the air,
And the yellow-bird's notes from the neighboring hill
Resound to the echoing whip-poor-will.

Among the birds so beautiful and gay
I love to wander all day long;
On pinions of light they fly away
And join the universal revel of song.

THE NECESSITY OF A STATE ENTOMOLOGIST.

[From the Legislative Journal, House Proceedings, Friday, Jan. 24, 1873.]

Hon. H. A. Shaw, of Eaton county, presented a memorial for a State Entomologist, signed by the officers of the several State Pomological and Agricultural Societies of the State. The following is the memorial:

To the Honorable the Senate and House of Representatives:

The undersigned, memorialists, would respectfully ask of your honorable bodies the earnest consideration of the great need and importance to our State of a State Entomologist.

We hardly need, sirs, to call your attention to the very patent fact that agriculture and horticulture stand chief among our industrial pursuits, and form the very basis of the prosperity of our great commonwealth. Equally well do you understand that during the last quarter of a century the average annual production of many of our great staples have fallen off from 25 to 50 per cent. Now, what are the causes of this decline? Why has the yield of wheat fallen off 50 per cent during the last twenty years? Why have many fields of corn utterly failed? Why the unprecedented high price of potatoes, regulated, as you know, by the law of supply and demand? Why do we begin to despair of raising radishes? Why are our onions rapidly falling off? Why have apples and peaches fallen off from 15 to 50 per cent, and plums often 100 per cent, during the last decade? Why are we losing thousands of dollars' worth of fruit trees annually?

Now, sirs, while we would not have you under-estimate, as among the causes of these unpleasant facts, improper tillage, starvation of soils, or less propitious climate consequent upon the unvenial destruction of our forests; yet we desire to invite your attention to what has been gathered by our practical experience, and is generally unappreciated; that a chief cause lies in the wholesale devastation by our insect pests.

Allow us to call your attention to some alarming statistics bearing upon this subject:

Dr. A. S. Packard, noted for his caution as a naturalist, makes, in his first report as Entomologist of Massachusetts, the alarming statement "that from noxious animals and fungus growths, we, as a nation, lose \$500,000,000 annually." The late Dr. B. D. Walsh, than whom there were none better qualified to judge correctly, estimated our annual loss from insects alone at \$300,000,000. According to Dr. Fitch, State Entomologist of New York, that great State lost, in 1854, from the ruin to the wheat crop by the Hessian fly alone, the sum of \$15,000,000.

Dr. Shimer estimates the loss to Illinois in 1864, by the destruction of the

corn and wheat crops,—the small chinch-bug being the devastator,—at \$73,-000,000, which Prof. Riley, the able State Entomologist of Missouri, says is very moderate.

The cabbage butterfly, which is rapidly approaching our own State, annually destroys, according to Canadian estimates, around the single city of Quebec, \$240,000 worth of cabbages.

Had the statistics been gathered, equally startling accounts would be given of ravages in our own State, where millions of dollars' worth of wheat have been sacrificed to the midge and Hessian fly; thousands of dollars' worth of corn, vegetables, and fruit trees to the ruthless cut-worms; whole orchards of peach and apple trees to the various borers; while the codling moth, curculio, and the insatiate potato beetle, with scores of colleagues, are fast working to blight our hopes, and retard, if not undermine, the prosperity of our State. B. Hathaway, of Cass county, in a recent address, stated as his opinion that, in many regions, if not generally, the loss during the past year by the codling moth alone would be sufficient to pay all the town, county, and State taxes. His loss during the previous year was more than two hundred dollars. A. J. Cook, Professor of Entomology at our Agricultural College, and Entomologist of the orchard committee of the State Pomological Society, for the past year, reports that the committee visited apple orchards where one-third of the trees were utterly ruined by the borers, peach orchards wholly ruined by the peach-tree borer, while on the light soils along our western lake shore, and inland, 50 per cent of the trees of many young orchards were killed by the cut-worms.

Permit us now to call your attention to the benefits which are sure to result from a wise appointment, and full maintenance of a State Entomologist.

Dr. Packard asserts that by proper exertion, ten per cent of the \$500,000,000 already referred to might be saved, nor do we believe he over-estimates; yet it is no easy matter to incite the community to the necessary exertion which is to save to our nation this \$50,000,000. We believe the most efficient means to this end would be gained in the services of a capable Entomologist.

Scientific and practical entomologists have already invented remedies for many of the ills which the vegetable kingdom is heir to; but as yet the cultivators,—the practical men,—are generally in total ignorance of them. A State Entomologist, meeting with our clubs and associations, by private lectures, and through the press, could spread this information, and thus save to our State immense sums; the more so as very practicable and efficient remedies are already discovered for most of the insect pests of Michigan, yet some of our most destructive insect enemies are still beyond our reach. But to copy from President Wilder's address before the National Pomological Society in 1871: "Is there an insect enemy that may not be overcome? Is there a disease for which nature does not offer a remedy? Yet we must be wise to take it. There are more than one-half million of species of insects more than of all other animals, with plants thrown in. How to discover means whereby we may successfully baffle the attempts of the noxious, not only requires a high order of talent and well trained observation, but long, hard study as well; for a general knowledge of all insects is requisite, embracing structure, habits, development, etc. Thus we may hope that a live Entomologist, thoroughly cultured in his science, will as he continually observes and studies these smallest, yet mightiest of our foes, discover the remedies now unknown, as well as improve those already discovered."

Again, quoting from Dr. Packard: "I could enumerate upwards of fifty

species of insects which prey upon our cereals and grasses, and as many which infest our field crops. Some thirty well-known species ravage our garden vegetables. There are nearly fifty species which attack the grape vine, and their number is increasing. About seventy-five species make their annual onset upon the apple tree, and nearly an equal number may be found upon the plum, pear, peach, and cherry." Quoting from Prof. Cook's report, "the really damaging ones affecting the fruit and fruit trees of our own State, may almost be counted on the fingers," and the same is true of those attacking our grass and cereals, those preying upon other field crops, and those pillaging our gardens. The onion fly, the currant slug, the grape weevil, and perhaps others are even now just entering our State, as yet but just plundering the confines, while the cabbage butterfly, the asparagus beetle, are nearing us, and will, with scores of other marauders, enter in and occupy our State, unless vigorous measures are taken to stay their progress. Now, with a State Entomologist to rouse the people, warning them of these sure dangers, we may incite that concerted action which can alone save us from these prospective devourers. It were far easier to keep these enemies at bay, than to vanquish them when once among us. Give us one to enlighten our people, and the easier course is sure of adoption.

We also need concert of action. One man or neighborhood may exterminate every insect pest, but if a neighbor or adjacent community are heedless, the evil is but temporarily removed; all live pomologists can bear witness on this point. Can a State Entomologist induce this united action? We answer, Yes. Dr. Trimble, State Entomologist of New Jersey, has so aroused the universal vigilance of the great fruit-growing sections, that it is said that the noxious insects of some large regions, especially about Vineland, are almost wholly vanquished.

But what is the testimony where the system has been tried?

New York appointed Dr. Asa Fitch State Entomologist in 1853, and have sustained him in the position ever since. Senator A. B. Dickerson stated, at one of the meetings of the State Agricultural Society, that Dr. Fitch saved to the State the large annual sum of \$50,000, which opinion met the acquiescence of all the members.

Illinois appointed Dr. B. D. Walsh State Entomologist in 1867, with a salary of \$2,000; and the high appreciation of the office in that State was practically demonstrated two years later, when, by the greatly lamented decease of Dr. Walsh, the office becoming vacant, Dr. Le Baron was immediately appointed his successor.

Prof. Riley was appointed State Entomologist of Missouri in 1868. His salary has since been raised to \$3,000.

Dr. A. S. Packard was appointed State Entomologist of Massachusetts in 1870.

Dr. Trimble has acted for several years as Entomologist of New Jersey, —whether or not as a State officer we are not informed.

Ontario, Canada, pays, by act of the Legislature, the Canadian Entomological Society, for investigating and annually reporting on the insects of Canada.

Europe has long been awake to the wisdom of fostering the science of applied entomology. *Especially* wise and provident Germany has issued, at Government expense, most elegant treatises, written by men of world-wide fame, and whose influence for good cannot be over-estimated.

We could give many quotations on this subject, commending the action of the above mentioned States, also desiring that our own Michigan might be numbered with them. But a very few must suffice.

"We may say positively that destructive insects are increasing every year, and that they destroy as great an amount of food as is sowed. The transmission of learning from the learned few to the common people without a teacher is impossible."—*New York Tribune*.

"Michigan stands high in educational matters, and is one of the best fruit growing States in the Union. A little effort would, no doubt, result in the appointment of a State Entomologist, whose exertions would save the State many times the amount of a generous salary."—*Prairie Farmer*.

"The farmers and fruit growers of Michigan want a State Entomologist to whom they can apply for advice and instruction."—*Western Rural*.

We would call attention of your honorable bodies to the fact that to-day all Europe is in wild excitement, caused by the threatened destruction of all their magnificent vineyards, by the little, almost microscopic, grape-vine louse; Commissioners are appointed, prizes offered, and whole governments aroused, praying for a remedy.

If all Europe is startled by the presence of one little insect, should not the presence of many scores, with *more* rapidly approaching, awaken us to the wise policy of adopting at once protective measures.

Your petitioners would respectfully ask that provisions be made by your honorable bodies for the immediate appointment and liberal support of a State Entomologist, and your petitioners, as in duty bound, will ever pray.

ORCHARD DRAINAGE.

BY A. T. LINDERMAN.

An ice pitcher on the dinner table in mid-summer is an illustration of the amount of moisture contained in the atmosphere at that season of the year. Apparently covered with sweat, the pitcher shows that with its small surface during the dinner hour a tablespoonful of water can be extracted from the air coming in contact with it. This is one principal of drainage.

A lampwick drawing the oil from the bottom of the lamp to the blazing top is an illustration of capillary attraction. This is another principal of drainage.

The well known law of gravitation, causing the water in the leach to percolate to the bottom is the third and last principle of orchard drainage.

The commonly accepted idea that the prime object of an under drain is, as its name indicates, to drain the water off the land, is entirely erroneous in our estimation. The main benefit in the way of draining is in draining the atmosphere of moisture, not the land. Of course these remarks are not intended to apply to drains laid for the express purpose of relieving some swampy or springy place of its surplus water, but to under-drains laid on orchard lands.

We believe in orcharding for fruit, not for woody growth, and while a certain amount of wood must be produced each year to promote health, yet we believe this needed amount is much more limited than is commonly supposed.

A law of nature which we have often noticed in fruit and forest trees is, that whenever their growth is checked or retarded they at once bend their energies toward the reproduction of their species by developing fruit buds. Now we come to the place in our argument where a slight divergence is necessary in order to make our idea clear to the reader.

The summer of 1871 was noted for extreme drouth in this section (Kent County); the cherry trees generally developed a wonderfully large amount of fruit buds, but not a large growth of wood; the winter of 1871 and 1872 was remarkable for extreme cold and little snow. Mark the result: The spring of 1872 brought a large amount of blossoms on the cherry trees, and the early summer an enormous crop of fruit, notwithstanding the extreme rigor of the previous winter. We might cite numerous other instances which prove that a limited supply of moisture during the growing season produce a large proportion of well ripened fruit buds and a limited amount of well ripened wood. Now if this premise be correct, we have the starting point. The next problem is to ripen this large crop of fruit and produce the complement of buds for the ensuing year, and at the same time retain the health of the tree unimpaired. To do this nutriment is necessary, and we believe it to be also essential that

the limited supply of moisture with which we propose to supply the roots percolate through a rich soil before reaching them, and also that they have a nutritious loam to ramble in.

We now return to the original subject of drainage and introduce an accessory in the manner of preparing the ground, planting and after management, all of which shall, with the proper drains, comprise a perfect orchard system of ground culture for heavy lands. Let the ground be plowed without dead or back furrows, that is, commence either at the center or outsides and go around the piece until finished, roll and harrow thoroughly, plant the trees in straight rows and proper distances apart according to kind, then mulch, during the summer lay the underdrain of tile (in the center) between each row, the autumn following plow the land, making a back furrow where the row of trees stand and a dead furrow over each drain, the next spring mulch again, the first mulch having been plowed under, and the ensuing fall plow again towards the trees and again mulch. If it be a peach orchard this plowing will probably be sufficient to form a watershed, which will run the water off the ground around the trees, and prevent an excess of moisture during a wet season. If it be an apple orchard more similar plowings may be necessary. No fear need be entertained of the trees drying out, but a good regular annual crop, a hardy growth, and healthy trees, will be the reward.

If the orchardist desires to manure the land over the drains sufficient to grow a crop of field corn, he can do so, provided he keeps his trees well mulched and does not allow the corn to approach nearer than six feet from the trees.

Return now to the three principles and note their application. The cool earth around the tile is like the iced water in the pitcher, and the warm summer air penetrating the drain is compressed and the moisture is left on the inside surface of the tiles; the roots of the tree are like the blaze of the lampwick, absorbing the moisture from the soil with which they are in contact, which, like the lampwick, draws from the tiles its supply, which in a small orchard will aggregate hundreds of hogsheads of water daily; the surplus water during rains will of course leach from the dead furrow to the drain, and our three principles are complete and their uses explained.

THE AMATEUR CULTURE OF STRAW- BERRIES.

BY A MICHIGAN AMATEUR.

Amateurs are, as a rule, self taught, commencing oftentimes with but little idea of the relative productiveness or value of the various sorts that challenge the attention of the planter, and possibly indulging the impression that with this fruit little is to be done but to plant in April or May and reap in June; the tyro,—ignoring books,—is not unfrequently left to win his diploma in the slow but effective school of experience. Failing, possibly again and again, in his attempts to discover a royal road to success in strawberry culture, if he does not abandon the attempt in disgust he will be finally led to the conclusion that in this as in other branches of human knowledge and experience, in one way or another all will be compelled to pay the matriculation; also that it is as true in this as in most other human pursuits, that *whatever is worth doing at all is worth doing well.*

Fortunate is the man who, just launching out into strawberry culture (or indeed in any other culture), has the forecast not only to make this his rule from the beginning, but also to avail himself to the utmost of the wisdom and experience of those who had learned before him.

In the cultivation and management of the strawberry there are three general plans or processes, each having its advantages, real or imagined, and each more or less commonly practiced.

1st. Planting in beds, leaving the plants to run together and cover the entire bed; renewing the plantation each alternate year.

2d. Planting in rows, and suffering the plants to run together in the row; renewing the plants either on the same or on fresh ground after gathering one full crop from them.

3d. Planting on hills, keeping all runners removed, and continuing the same plantation for several years.

PLANTING IN BEDS.

The first is the process practiced by the great mass of persons who, with little experience or thought, plant for the supply of a home or family want; and if the ground is clear from the seeds of weeds, well prepared and planted and properly cared for otherwise, the result is likely to be a few berries the first year, and a good crop of moderate sized fruit the second season, when the plantation will have exhausted itself, and should be turned under. This process requires the planting of a new plat each Spring. The difficulties of this process are: the amount of labor required to keep two plats clear of weeds

during the greater portion of two seasons, and the indifferent quality, as well as uncertain quantity, of the fruit produced; to which we may add, the necessity of devoting ground sufficient for two plats.

PLANTING IN ROWS.

The second is the process adopted (with occasional variations), by the great majority of market growers; although it is equally adapted to planting for home or amateur purposes. It consists in confining the runners to a narrow space along the row:—in other words to a wide row or narrow bed, until they shall have yielded one full crop; after which they are permitted to cover the vacant space, and form a new row or bed, for the next year's fruiting, while the old plants are turned under:—this process being continued from year to year, until it is found desirable to transfer the plantation to fresh soil. Use is made of the space thus left vacant, for cultivation (usually by horse power), for the application of mulch and manures, and for the accommodation of pickers.

The advantages claimed for this process are that it saves the labor and risk of replanting,—economizes the expense of cultivation, and reduces the quantity of land required, facilitates the protection of the fruit by admitting the employment of mulch, and decidedly improves both the quality and quantity of fruit. Still the plants are allowed to cover a narrow bed which must be cleared of weeds and grass by hand labor, and this space consequently cannot be properly mulched as a protection to the fruit, or as a safeguard against drought. Besides these objections the plants must expend a portion of their vigor in the production of runners for the renewal of the plantation each year, which is so much strength abstracted from their fruit-producing capacity. These objections will be more fully considered when we come to the consideration of the

PLANTING IN HILLS,

or third process, which is the only one (if we mistake not), in vogue among European growers of this fruit, and which, even in this country, is acknowledged to be the only one by means of which even tolerable results can be secured with varieties of European origin. Its application to our native varieties has, however, been urged for many years, by many of the most successful and noted of American growers, who have succeeded in demonstrating very clearly that, at least in their hands, it has been found to be both effective and profitable.

The strawberry plant doubtless suffers exhaustion from both the production of fruit and the growth of new plants from runners, and the exhaustion from the production of runners and plants, no doubt, detracts so much from its ability to produce and perfect fruit. Failing, in consequence of the removal of the runners, to reproduce itself in the usual way—the result is the storing up in additional crowns (fruit buds), of the vital energies of the plant; each of which, in the proper season, develops its own system of fruits; thus deriving from a single plant the fruit that must otherwise be distributed over a considerable surface.

The advantages to be anticipated from this process are, the utilizing, as above stated, the entire energies of the plant for the production of fruit: confining the plants to hills so that the entire surface can be mulched, leaving the space between the rows open for cultivation, the application of manures, and the convenience of pickers. The most weighty objection to this system of

cultivation is the attention necessary during the growing season for the removal of the runners, although it is claimed by many that the yield of fruit is really less than by other processes. Be this as it may; when we observe that the cost of cultivation is certainly not increased, but rather diminished, and that replanting will only be necessary at intervals of three, four, or more years, while the size and consequent value of the fruit is greatly increased; we can hardly fail to reach the conclusion that the process is well worthy of trial.

THE REV. JOHN KNOX'S SYSTEM AND SUCCESS.

Probably no one individual has done more to demonstrate the success, or profitableness of this system of managing the strawberry than the Rev. John Knox, late of Pittsburgh, Pa., now deceased. Mr. Meehan, the editor of the *Gardner's Monthly* of Philadelphia, after an examination of his plantations, writes as follows, of the success of Mr. Knox: "The great secret is his manner of treatment:—* * * The plants are set in the spring, rather close in the rows, and the runners cut back by hand. This cutting back is one great secret. He has found that the production of runners and fruit are antagonistic forces. * * * Familiar as I am with superior fruit crops, I have never known anything to equal this. The size of the berries was the largest that any one ever saw, and might easily be mistaken by a near-sighted observer for tomatoes. The interest of the matter, however, does not centre so much in the large size of the berries as in the number of them. I have seen, probably, as great a weight per acre on the grounds of Philadelphia growers, but nowhere the same measure of large fruit. In most strawberry crops a few large berries come at first, and a mass of small ones follow; here there are comparatively few of the latter, and the great advantage is that, while in times of abundance the inferior ones glut the market, and are only sold at a loss to the grower, the superior fruit is never abundant, and readily commands high prices."

The *Horticulturist* for 1871, says: "Mr. Knox succeeded in making his land, devoted to the Jucunda Strawberry, pay from \$1,200 to \$1,500 per acre, and frequently sold fancy berries at the rate of one dollar per quart. * * * These quart baskets often held but eighteen berries, or but nine to the pint. From two and a half acres last year he realized, net, \$3,600. He is the only strawberry grower of our acquaintance who makes more money from the fruit than from the plants from the same ground."

We cannot better advise how to grow big crops of strawberries, than by quoting a paragraph from the same article at page 63: "Give room; do not plant too close together; two feet apart is better than one foot. Two and a half feet by one and a half to two feet is just right for field culture. Put a good shovelful of manure under each plant at the time of setting. * * * One grower plants two feet by one and gets two thousand quarts per acre; another plants two and a half by two, keeps the runners out, and gets four thousand quarts per acre. The former cannot understand why with twice as many plants he gets only half the crop. We assure our readers, that strawberries are, like the colossal asparagus—*biggest where they have the most room and best feed*. A crop of one thousand quarts per acre will prove a failing business to any grower. It is better to reduce plantations one-half and manure double.

In the *Small Fruit Recorder* will be found the report of experiments in the hill system and the matted row system: "1,500 plants of the Wilson's Albany were kept in hills, the runners pulled off every time they appeared; the other

1,500 were cultivated on the matted row system, thoroughly hoed and cultivated. In the middle of November, both beds were mulched; half of them were mulched with straw, one-quarter with coarse stable manure, and one-quarter were not mulched at all. The results are as follows: Those kept in hills and mulched with straw, were decidedly the largest and finest berries; those kept in rows and mulched with straw were also very fine. Those in beds and mulched with manure did not yield more than half as many berries, and of an inferior quality, as these mulched with straw, and these not mulched at all were hardly worth picking."

CONCLUDING REMARKS.

In conclusion I may indulge the remark that it is as true in strawberry culture as in any other department of human industry, that "whatever is worth doing at all is worth doing well." Whichever may be found the most profitable mode of managing a plantation of strawberries for the market; in the family garden, and more especially in that of the amateur proper, where, almost any day a few moments can be devoted to the strawberry plat, and where the quality of the product is really of greater importance than the amount of time consumed, an intelligent application of the hill system is decidedly to be preferred. If the planting is done in spring, and the plantation kept in good tilth during the season, the fall will witness a size and vigor of plants, that will astonish one who has never witnessed the experiment. But, to secure the best results, fail not to keep off all runners; do not wait till they are fully or even partially grown and have extended themselves beyond the foliage. They usually spring forth from the same bud as a leaf, and simultaneously therewith, at which time they have made little draft upon the vigor of the plant, and are easily removed with the thumb and finger.

MULCHING.

Do not fail to apply a winter protection of mulch, lightly covering the entire surface, plants included. This should be removed, at least from the plants, before the season of growth; and, unless on quite light, mellow soils, it should be removed entirely, to admit the cultivation and mellowing of the soil, and the warm rays of the sun upon the surface. When the season is somewhat advanced, and especially if a drought is threatened, the mulch should be re-applied between and around the hills, to check the growth of weeds and to keep the berries from the earth.

Perhaps there is no more common mistake in the management of a plantation of strawberries, than that arising from a forgetfulness, after gathering the crop for the season, that next year will bring the need of another crop, and that the vigor necessary for its production must be, in a great degree, stored up by the plant during the coming summer and autumn. To enable it to do this, culture, manuring, cutting off runners and general care and watchfulness must not be intermitted. As with liberty, so with strawberries,—their price is "perpetual vigilance."

OF ONE HUNDRED, HOW MANY?

REPORT OF THE COMMITTEE GIVING THE PROPORTION OF THE VARIOUS FRUITS IN AN ORCHARD OF ONE HUNDRED TREES, RECOMMENDED AND ADOPTED FOR FAMILY, MARKET, AND AMATEUR CULTIVATION, REVISED, CORRECTED, AND ADOPTED AT KALAMAZOO JUNE 28, 1873.

To the President of the Michigan State Pomological Society :

SIR,—The Committee on Lists of Fruits having, by the adoption of their recommendations accompanying their last report, been instructed to attach to the names of fruits a series of numbers, indicating the proportion of each to be planted in a collection or orchard of one hundred trees, have complied with such instruction. In the previous report the list had been but imperfectly arranged with respect to season, owing to the lack of adequate time for that purpose.

They are now, therefore, re-classified, arranging them, as strictly as practicable, with reference to season of maturity.

The committee are persuaded that the usefulness of the list would be increased by attaching to certain varieties qualifying or characterizing remarks: and hence they have, in certain cases, assumed the responsibility of so doing.

All of which is respectfully submitted, and the concurrence of the Society asked.

The following is the list of fruits recommended for general planting in the State of Michigan, as re-arranged, numbered, and qualified :

SUMMER APPLES.

List for market, giving a succession.—Early Harvest 2, Red Astrachan 4, Duchess of Oldenburg 2, Maiden's Blush 6.

List for family or culinary purposes, with succession.—Early Harvest 1, Red Astrachan 3, Large Yellow Bough 1, Primate 2, Maiden's Blush 4.

List for amateur purposes, strictly of dessert sorts, with variety and succession.—Early Harvest 2, Carolina June (for southwest) 1, Sine Qua Non 2, Early Strawberry 2, Large Yellow Bough 1, Summer Rose (in certain localities) 2, Early Joe 2.

AUTUMN APPLES.

Market.—Lowell, known as Greasy Pippin, 2, Porter 1, Keswick Codlin (culinary) 2, Twenty Ounce, known as Cayuga Red Streak, 5.

Family.—Lowell 2, Porter 1, Hawley 1, Jersey Sweet 1, Chenango Strawberry 3, Dyer or Pomme Royale 2, Haskell Sweet 1, Fall Pippin 2, Ohio Nonpareil 5, Blenheim Pippin 3, Twenty Ounce 4.

Amateur.—Garden Royal 2, American Summer Pearmain 2, Hawley 2, Jersey Sweet 1, Chenango Strawberry 4, Autumn Swaar 3, Dyer or Pomme Royale 4, Haskell Sweet 1, Ohio Nonpareil 4, Fall Pippin 3.

WINTER APPLES.

Market.—Jonathan 4, Peck's Pleasant 6, Rhode Island Greening 10, Wagener 10, Baldwin 14, Northern Spy (special localities) 6, Golden Russet 8, Red Canada (top graft) 16, Roxbury Russet (variable) 2.

NOTE.—In newer localities, with light soil, where early returns is the main object, we recommend a much larger proportion of the Wagener for market purposes.

Family.—Fameuse 2, Westfield Seek-no-Further 2, Hubbardston Nonsuch 2, Belmont 2, Rhode Island Greening 5, Wagener (fruit requires thinning) 8, Bailey Sweet 2, Peck's Pleasant 3, Yellow Bellflower 3, Northern Spy (special localities) 4, Baldwin 7, King of Tompkins County (special localities) 2, Talman Sweet 2, Golden Russet 4, Lady's Sweet 2, Red Canada (top graft), for dessert only, 10, Roxbury Russet (variable) 4.

Amateur.—Shiawassee Beauty 3, Hubbardston Nonsuch 2, Wagener 3, Melon 3, Belmont 3, Baily Sweet 2, Jonathan 3, Peck's Pleasant 4, Rhode Island Greening 6, Yellow Bellflower 5, Northern Spy (special localities) 3, King of Tompkins County (special localities) 2, Grimes' Golden 2, Swaar 4, Esopus Spitzenberg 2, Lady's Sweet 2, Red Canada (top graft) 8, Golden Russet 5.

SUMMER PEARS.

Market.—Madelaine 2, Osband's Summer 4, Tyson 4.

Family.—Madelaine 3, Doyenne d'Ete 5, Bloodgood 3, Tyson 5.

Amateur.—Madelaine 2, Doyenne d'Ete 3, Bloodgood 3, Beurre Giffard 3, Tyson 5, Rostiezer 5.

AUTUMN PEARS.

Market.—Sterling (succeeds on light soil) 8, Bartlett 12, Buffum 4, Seckel 8, Flemish Beauty 5, Onondaga 12, White Doyenne (sometimes fails) 7, Beurre d'Anjou 18.

Family.—Clapp's Favorite 5, Sterling (succeeds on light soils) 4, Bartlett 12, Flemish Beauty 6, Seckel 10, Onondaga 10, Sheldon 10, Beurre d'Anjou 15.

Amateur.—Clapp's Favorite 6, Bartlett 8, Washington 4, Seckel 8, Fondante d'Automne 4, Beurre Bose 8, White Doyenne (sometimes fails) 4, Sheldon 5, Beurre d'Anjou 10.

WINTER PEARS.

Market.—Beurre Diel 4, Lawrence 8, Beurre Gris de Hiver Nouveau 4.

Family.—Beurre Diel 4, Lawrence 8.

Amateur.—Beurre Diel 4, Lawrence 8, Winter Nelis 6, Beurre Gris de Hiver Nouveau 4.

PLUMS.

Market.—Duane's Purple 12, Canada Egg (local) 12, Yellow Egg 16, Washington 20, Lombard 20, Coe's Golden Drop 20.

Family.—Prince's Yellow Gage 10, Canada Egg (local) 10, Washington 12, Jefferson 16, Imperial Gage 15, Sheldon 8, Bavay's Green Gage 15, Coe's Golden Drop 13.

Amateur.—Green Gage 10, Canada Egg (local) 10, Huling's Superb 10, Jefferson 13, McLaughlin 13, Columbia 8, Imperial Gage 10, Bavay's Green Gage 13, Coe's Golden Drop 12.

PEACHES.

Market.—Hale's Early (dry soil and open exposure) 6, Wheeler's Early 6, Cooledge's Favorite 4, Honest John (of Michigan) 4, Crawford's Early 12, Barnard (of Thomas) 11, Old Mixon Free 6, Jacques Rareripe 12, Foster 4, Stump the World 4, Crawford's Late (on clay) 11, Hill's Chili (local name) 12, Smock Free (southern lake shore) 4, Keyport White (southern lake shore) 4.

Family.—Hale's Early (dry soil and open exposure) 10, Cooledge's Favorite 10, White Imperial 10, Honest John (of Michigan) 10, Crawford's Early 10, Barnard (of Thomas) 10, Old Mixon Free 10, Crawford's Late (on clay) 10, Hill's Chili (local name) 10, Smock Free 10.

Amateur.—Hale's Early (dry soil and open exposure) 6, Serrate Early York 4, Cooledge's Favorite 6, George the Fourth 6, Grosse Mignonne 6, Large Early York 6, Crawford's Early 6, Barnard (of Thomas) 6, White Imperial 6, Late Red Rareripe 6, Old Mixon Free 6, Old Mixon Uling 6, Crawford's Late (on clay) 6, Hill's Chili (local name) 6, Davis' Late (local name) 6, Keyport White 6, Tippecanoe Cling 6.

CHERRIES.

Market.—Kentish 25, Mayduke 20, Louis Phillippe 30, Belle Magnifique 15.

Family.—Kentish 35, Mayduke 20, Louis Phillippe 35, Belle Magnifique 10.

Amateur.—Early Purple Guigne 4, Kentish 15, Mayduke 20, Reine Hortense 8, Belle de Choisy 20, Late Duke 10, Louis Phillippe 15, Belle Magnifique 8.

GRAPES.

Market.—Hartford Prolific 5, Eumelan 15, Delaware 35, Israella (on light, dry soils) 10, Concord 20, Iona 10, Ives Seedling 5.

Family.—Hartford Prolific 5, Eumelan 15, Delaware 30, Concord 10, Diana or Wilder (for keeping) 20, Agawam (for keeping) 20.

Amateur.—Adirondac 4, Crevelling 6, Croton (trial) 3, Eumelan 10, Delaware 20, Israella (on light, dry soils) 15, Iona 20, Allen's Hybrid 5, Rebecca 7, Diana (for keeping) 10.

NOTE.—A motion was made to strike out the Diana and substitute the Wilder in the family list of grapes. The motion was lost. It was then moved and carried that the Wilder be placed with the Diana, to be adopted at the option of the planter. Both were highly recommended as long keepers.

STRAWBERRIES.

Market.—Wilson's Albany 100.

Family.—Downer's Prolific 10, Wilson's Albany 20, Charles Downing 25, Green Prolific 20, Michigan 25.

Amateur.—Downer's Prolific 12, Charles Downing 15, Agriculturist 12, Lennig's White 12, Green Prolific 14, Triomphe de Gand 10, Michigan 15, Kentucky 10.

RASPBERRIES.

Market.—Philadelphia 60, Clarke (for lake shore) 40.

Family.—Philadelphia 60, Purple Cane 40.

Amateur.—Orange (tender) 40, Philadelphia 35, Clarke 25.

BLACK CAPS.

Market.—Doolittle 40, Mammoth Cluster 60.

Family.—Davison's Thornless 20, Doolittle 35, Mammoth Cluster 45.

Amateur.—Davison's Thornless 20, Miami (the old) 20, Doolittle 25, Mammoth Cluster 35.

BLACKBERRIES.

Market.—New Rochelle (where hardy) 30, Kittatinny 70.

Family.—Wilson's Early 50, Kittatinny 50.

Amateur.—Wilson's Early 45, Kittatinny 45, New Rochelle (where hardy) 10.

CURRANTS.

Market.—Red Dutch 40, Cherry 30, Victoria 30.

Family.—Red Dutch 30, White Dutch 20, White Grape 20, Cherry 15, Victoria 15.

Amateur.—Red Dutch 30, White Dutch 25, White Grape 25, Victoria 10, Black Naples 10.

GOOSEBERRIES.

Market.—Houghton 50, Mountain Seedling 50.

Family.—Houghton 40, Downing 60.

Amateur.—Houghton 40, Downing 60.

The report is unanimous.

T. T. LYON,
JAMES D. HUSTED,
A. J. COOK,
EDWARD BRADFELD,
B. F. HATHAWAY,
H. E. BIDWELL,

Standing Committee on Lists of Fruit.

PEAR BLIGHT.

REPORT OF A COMMITTEE OF THE POMOLOGICAL SOCIETY.

Hon. Marshall P. Wilder, President American Pomological Society :

DEAR SIR,—The committee appointed at the last annual meeting of the Society, to investigate the cause of pear blight, and, if possible, recommend a remedy or preventive therefor, beg leave to submit as follows :

The task allotted to your committee is connected with unusual difficulties, as the subject is one that has for more than a quarter of a century remained an unsolved problem. We therefore entered upon the performance of our duties with the conviction that our efforts must fall short of doing justice to the object in view.

Pear blight assumes different forms and has consequently different causes for its origin. One form attacks trees *gradually* ; its approach is slow and may be detected for months, and often during the preceding season of growth, before the tree is fully affected. This form, which may be termed gradual blight, is seen at all seasons during the period of active vegetation, from early spring until September. Its progress is usually arrested by a liberal top-dressing of liquid manure, so far as the roots extend, and a severe cutting back of the branches. This must be done whenever the tree assumes an unhealthy appearance. The cause, then, may be safely attributed to exhaustion, and the remedy consists in replenishing the exhausted supply of plant food. This form of blight is often noticed in orchards left unworked and where the annual or biennial top-dressing with fertilizing agents has been withheld.

Another, and this is the most fatal form, attacks a tree or a portion of it suddenly, causing the affected part to blacken in a few hours after the tree is struck; this is commonly termed *fire blight*. This form is periodical in its attacks and migratory, as it seldom remains permanent in a locality, but leaves an interval of from ten to fifteen years between its occurrence. Its greatest intensity is on its first appearance, which occurs usually when the fruit has attained half its size; it decreases as the season of vegetation advances, but reappears again the following summer with less of its previous intensity. After decimating a section of country during two consecutive seasons, there will be an interval of a series of years, during which blight in its other forms may occur, but there will not be a wholesale destruction as during the prevalence of epidemic blight. Every observation tends to the conclusion that fire blight is caused by zymotic fungus, whose presence is not detected until life is destroyed in the affected parts. This form offers a wide field for the investigation of microscopists, and from their future labors, we hope to arrive one day at the origin of this fungoid growth. We are unable to arrive at a satisfactory

conclusion as to what peculiarities of soil and temperature induce the favorable conditions for the development of this fungoid vegetation.

In the experimental gardens of the Department of Agriculture at Washington, the following mixture is prepared: Place a half-bushel of lime and six pounds of sulphur in a close vessel, pour over it about six gallons of boiling water, adding enough cold water to keep it in a semi-fluid state until cold. It is used as a wash and applied to the trees and branches as high as can be reached. It should be applied two or three times during the summer. Since this preparation was used, no trees thus treated have been lost, although small limbs not coated with the mixture were attacked and destroyed. Carbolic acid has also been used without any perceptible difference in the result from the lime and sulphur mixture. Boiled linseed oil, applied to the trunk and limbs, has been tried near Norfolk, Va., with marvelous cures, as reported. We mention this instance of the use of an extraordinary ingredient resulting in good effects as contrary to what is usually the result when using this application upon the body of trees, its effects being to seriously injure the tree, if it does not destroy it.

Still another form of blight is doubtless caused by mechanical action, by the rupture of tissues consequent to a sudden superabundant flow of sap. This attacks only our most thrifty-growing trees, either in early spring, when vegetation first becomes active, or after a period of drouth and partial stagnation of vegetation, when abundant rains suddenly force out a luxuriant growth; moderately vigorous trees are never attacked.

It is often noticed in very vigorous trees that the bark of the trunk is split longitudinally; whenever this is apparent, such trees are always free from this form of blight, as the pressure upon the cellular and vascular tissues has been relieved. From a series of experiments commenced in 1867, it is demonstrated that trees whose bark had been longitudinally incised and divided never showed any signs of this form of blight.

Peculiar methods of culture undoubtedly influence the causes of blight; but upon this there exists a wide range of opinion. Clean culture and repeated stirring of the soil, while it may in many instances be conducive to most beneficial results, will often cause a total destruction of a pear orchard. In seasons of zymotic fungoid or blight highly cultivated trees fall early victims to the scourge, while those cultivated in grass with an annual top-dressing of manure usually escape the contagion.

The third form of blight caused by mechanical action is seldom found in orchards where the soil is left undisturbed, but is so common in gardens or where the trees are thoroughly worked that it has become only a question of time for the entire destruction of one's orchard.

In the Southern States this form of blight is the most destructive, as it has become endemic to all highly cultivated soils. Wherever the land is allowed to become coated with grass or weeds, but kept cut down every few weeks and an annual top-dressing of manure is applied, the result has been most satisfactory in an abundant crop of fruit and an almost entire freedom from blight.

P. J. BERCKMAN,
JOSIAH HOOPES,

Committee.

TREASURER'S REPORT.

STATEMENT OF RECEIPTS AND EXPENDITURES OF THE MICHIGAN STATE POMOLOGICAL SOCIETY FOR THE YEAR 1873.

RECEIPTS.

RECEIPTS BY S. L. FULLER, TREASURER.

Jan.	6	By balance on hand.....	\$0 38
"	29	By memberships at Lansing.....	51 00
Feb.	19	By annual memberships.....	5 00
March	6	By annual memberships, reported by T. T. Lyon.....	10 00
"	6	By annual memberships at Battle Creek.....	18 00
"	6	By donation, Findall.....	1 00
April	6	By annual memberships.....	2 00
May	7	By annual memberships, meeting at Ada.....	6 00
"	26	By proceeds of note discounted.....	49 18
June	3	By donation, by Hunter Savage.....	50 00
"	10	By donation, by N. P. Husted.....	20 00
Total.....			<u>\$212 56</u>

NOTE.—Mr. S. L. Fuller resigned, and Mr. Henry Seymour was appointed Treasurer.

RECEIPTS BY HENRY SEYMOUR, TREASURER.

July	14	By balance received from S. L. Fuller.....	\$48 53
June	18	By annual memberships, at Kalamazoo meeting.....	18 00
"	18	By annual memberships, reported by Sternes, Kalamazoo.....	6 00
Aug.	4	By annual memberships.....	1 00
"	4	By donation, by G. W. Griggs.....	50 00
"	11	By entry I. E. Ilgenfritz & Co.....	2 00
"	19	By annual memberships.....	3 00
Sept.	4-5	By annual memberships, at South Haven meeting.....	46 00
"	4-5	By J. M. Sterling, entry of vineyards.....	3 00
"	4-5	By annual memberships.....	7 00
"	9	By Deitrich & Breakner, entry.....	1 00
"	20	By State Agricultural Society.....	1,500 00
"	20	By memberships at State Fair.....	218 00
"	20	By annual memberships, by E. J. Shirts, of Shelby.....	6 00
"	20	By annual memberships, Geo. Parmelee, of Old Mission.....	6 00
"	20	By Judge Graves, of Battle Creek, donation.....	5 00
"	20	By Ganges township, Allegan county, fruit donated and sold.....	11 00
"	20	By fruit donated and sold at State Fair.....	15 05
"	22	By L. E. Patten, discount on sale of pictures for premiums.....	17 50
"	22	By E. B. Dikiman, discount on sale of silver ware.....	1 00
"	22	By annual memberships.....	1 00
Oct.	2	By fruit sold E. G. Eaton at Fair.....	2 00
"	13	By memberships at Grand Traverse, obtained by W. N. Cook.....	47 00
"	13	By annual memberships.....	3 00
"	13	By donation, by A. S. Dyckman.....	50 00
"	13	By donation, by N. P. Husted.....	30 00

Oct.	13,	By donation, by J. G. Ramsdell	\$10 00
"	13,	By life membership, M. S. Crosby (paid one dollar previously)	9 00
"	14,	By life membership fund in hands of S. L. Fuller, transf'd to gen'l acct,	51 91
"	21,	By life membership, John Suttle	10 00
"	21,	By donation by John Suttle	5 00
"	21,	By donation by Hunter Savage	20 00
"	29,	By annual membership	3 00
"	29,	By donation by D. L. Arnold	2 00
Nov.	3,	By life membership, N. P. Husted	10 00
"	3,	By life membership, J. D. Husted	10 00
"	3,	By life membership, T. T. Lyon	10 00
"	3,	By amount transferred from Vick's fund	15 00
"	6,	By donation, E. J. Shirts	2 00
"	15,	" Geo. Taylor	1 00
"	15,	" W. P. Hibbard	2 50
"	15,	" H. P. Hanford	3 00
"	15,	" L. C. Lincoln	1 50
"	15,	" P. C. Davis	20 00
"	15,	" C. Engle	34 25
"	15,	" Habana Wine Co.	2 00
"	21,	By annual memberships, by G. W. Toles, Benton Harbor	14 00
"	28,	By life membership, Geo. Parmelee	10 00
"	28,	By life membership, J. M. Sterling, for himself, Noble, Ives and Williams	40 00
"	28,	By life memberships, L. G. Bragg, J. M. Stevens, T. R. Renwick, N. E. Smith	40 00
"	28,	By annual memberships, reported by C. W. Garfield, of the orchard committee	12 00
"	29,	By fruit sold to Martin, at Fair	6 00
"	29,	By donation, John Gilbert	2 35
"	29,	By donation, E. N. Reynolds	3 45
"	29,	By donation, I. E. Ilgenfritz	4 30
Dec.	3,	By annual membership, obtained by Geo. H. Seymour, Dept. Treasurer, at Battle Creek	33 00
Dec.	3,	By fruit donated and sold at Battle Creek meeting	4 60
"	12,	By annual memberships	2 00
			<u>\$2,491 96</u>

TOTAL RECEIPTS.

Total amount received by S. L. Fuller, Treasurer	\$212 56
Total amount received by Henry Seymour	2,443 41
Total receipts for year 1873	<u>\$2,655 97</u>

RECAPITULATION.

Total amount received from annual memberships	\$524 00
" " " State Agricultural Society	1,500 00
" " " Life membership fund	51 91
" " " Vick's fund	15 00
" " " for life memberships	139 00
" " " from donations and fruit sold, etc.	426 06
	<u>\$2,655 97</u>

NOTE.—From the above statement it will be seen that the year 1873, notwithstanding it was an unfavorable fruit year, was a very flourishing one for the Society. The total receipts were larger than for any previous year; the Society gained a larger number of annual members (524), and of life members, than during any previous year. It will be noticed that annual members joined at all the meetings of the Society: at Lansing, at Battle Creek, at Ada, at Kalamazoo, at South Haven, at the fair at Grand Rapids, at Grand Traverse in October, and at Battle Creek in December. These were all large meetings, well attended, and productive of good results. The donations to the Society were larger than any previous year, bespeaking the confidence and liberality of the members. When such a spirit prevails, the Society cannot but flourish.

EXPENDITURES.

STATEMENT OF EXPENDITURES BY S. L. FULLER, TREASURER.

Jan. 27,	To premiums paid for year 1872.....	\$14 50
June 11,	To Secretary's salary.....	120 00
" 11,	To expense express, postage, stationery, etc.....	29 51
" 11,	To balance paid to Henry Seymour, Treasurer.....	48 55

Total paid by Mr. Fuller.....	\$212 56
-------------------------------	----------

EXPENDITURES PAID BY HENRY SEYMOUR, TREASURER.

June 18,	To amount paid Prof. Cook for cuts burned in Michigan Farmer office.....	\$11 50
" 18,	To express on books from Pontiac.....	2 20
Aug. 4,	To Secretary's salary.....	90 00
July 21,	To check and postage stamps.....	2 25
" 23,	To Daily Eagle for printing.....	3 50
Aug. 7,	To postage.....	5 00
" 7,	To Eaton & Lyon, stationery, old account, 1872.....	3 05
" 7,	To express on books.....	3 10
" 22,	To paper and freight.....	60
" 22,	To expense freight and postage.....	9 85
Sept. 18,	To postage.....	1 00
" 10,	To Secretary's salary.....	110 00
" 20,	To Mr. Gilbert, premiums.....	10 00
" 20,	To Jas. Cox, services as clerk at Fair.....	20 00
" 20,	To Chas. W. Garfield, services as clerk at Fair.....	18 00
" 20,	To Mr. Hand, night and day watch at Fair.....	20 00
" 20,	To L. E. Patten, pictures for premiums.....	70 00
" 20,	To expense of Superintendent of Pomological Hall, trimming, decorating, help, etc.....	35 45
" 23,	To Southwick & Wright, for plates for fruit at State Fair.....	40 92
" 23,	To E. B. Dikeman, silver ware for premiums.....	7 00
" 23,	To dinners for committees at Fair.....	131 20
" 23,	To Wm. Rowe, premiums.....	90 25
" 23,	To Mrs. L. E. Patten, premiums.....	7 00
" 23,	To John Suttle, premium on flowers.....	92 00
" 23,	To freight on reports.....	5 96
" 23,	To Henry Seymour, Sup't of Hall.....	35 00
" 25,	To Daily Democrat, printing.....	5 00
" 25,	To freight on books.....	2 90
" 29,	To J. J. Ramsdell, expense.....	10 00
" 29,	To N. P. Husted, premium.....	107 00
" 29,	To D. L. Arnold, premium.....	5 00
Oct. 1,	To L. E. Patten, premium.....	16 00
" 1,	To postage.....	2 00
" 1,	To cartage on books.....	25
" 1,	To W. N. Cook, premiums.....	2 00
" 1,	To E. G. Eaton, for silver ware for premiums for 1872.....	37 00
" 1,	To D. Hatch, premiums for 1872.....	63 54
" 1,	To E. N. Reynolds, premium.....	31 05
" 1,	To I. E. Igenfritz & Co., premium.....	38 70
" 1,	To J. W. Humphrey, premium.....	33 25
" 1,	To John Gilbert, premium.....	34 65
" 1,	To J. G. Ramsdell.....	45 00
" 1,	To A. S. Howard, premium.....	10 00
" 1,	To H. E. Bidwell, premiums for South Haven Pomological Society.....	134 35
" 1,	To postage.....	1 00
" 1,	To check stamps.....	50
" 4,	To paid Dietrich, and notes discounted.....	105 54
" 4,	To H. Seymour, premium.....	7 00
" 4,	To W. I. Blakely, premium.....	2 00
" 4,	To Mrs. A. Engle, premium.....	2 00
" 4,	To S. A. Pearsall, premium.....	13 00
" 4,	To G. W. Dickinson, premium.....	3 00
" 4,	To Mrs. Geo. Smith, premium.....	16 00
" 4,	To Mrs. Anna Lohn, premium.....	3 00

Oct. 4,	To Joe Seavy, premium.....	\$6 50
" 4,	To C. W. S. Dietrich, services as clerk at Fair.....	15 00
" 4,	To J. W. Barnard, premium.....	16 50
" 4,	To H. H. Richards, premium.....	3 00
" 4,	To Dygart Bro. & Co., printing (old bill) 1872.....	14 00
" 4,	To Mrs. Parsons, premium.....	1 00
" 4,	To C. W. Garfield, expenses orchard committee.....	3 85
" 6,	To Jas. Snow, premium.....	14 50
" 6,	To Chas. Beattie, premium.....	1 00
" 6,	To N. & C. Chilson, premium.....	36 75
" 6,	To C. S. Randall, premium.....	2 00
" 6,	To Mrs. D. Schermerhorn.....	13 50
" 7,	To T. T. Lyon, expenses executive committee.....	27 55
" 7,	To C. J. Dietrich, expense making report of 1872.....	34 50
" 7,	To C. J. Dietrich, premium.....	6 00
" 7,	To J. W. Barnard, premium, 1872.....	10 50
" 7,	To N. Cummings, premium.....	5 00
" 13,	To Geo. Taylor, premium.....	10 00
" 14,	To W. R. Hibbard, premium.....	22 50
" 14,	To freight on books from Lansing.....	3 21
" 14,	To Secretary's salary.....	90 00
" 14,	To A. Sigler, premium.....	24 00
" 14,	To L. C. Lincoln, premium.....	17 00
" 14,	To paper and twine for shipping books.....	55
" 14,	To H. Dale Adams, premium.....	5 75
" 15,	To Chas. Alford, premium.....	13 00
" 17,	To Jos. Gredley, premium.....	45 25
" 21,	To John Suttle, premium.....	15 00
" 22,	To Mr. A. Platt, premium.....	2 00
" 22,	To Mrs. Benham, premium.....	6 00
" 22,	To John Suttle, balance on premium.....	5 00
" 22,	To Secretary's salary.....	100 00
" 24,	To express and exchange.....	60
" 24,	To Hunter Savidge, premium.....	20 00
" 28,	To Mrs. Daniel Schermerhorn, premium.....	6 00
" 29,	To D. L. Arnold, premium.....	2 00
" 29,	To W. W. Barlow, premium.....	2 00
" 30,	To Edward Bradfield, premium (old account).....	20 00
" 30,	To H. J. Edjel, premium (old account) 1872.....	15 00
Sept. 18,	To Mr. Slayton, premium at Fair.....	5 00
Nov. 3,	To postage.....	2 00
" 3,	To N. P. Husted, balance on premium.....	20 00
" 3,	To J. W. Humphrey, premium.....	10 00
" 3,	To drayage on books, etc.....	3 50
" 3,	To E. J. Shirts, premium.....	2 00
" 11,	To freight on books from Lansing.....	15 78
" 11,	To drayage on books from Lansing.....	75
" 15,	To George Taylor, premium.....	1 00
" 15,	To W. P. Hubbard, ".....	2 50
" 15,	To L. C. Lincoln, ".....	1 50
" 15,	To H. P. Hanford, ".....	3 00
" 15,	To P. C. Davis, ".....	20 00
" 15,	To C. Engle, ".....	34 25
" 15,	To Urbana Wine Co., ".....	2 00
" 28,	To J. M. Sterling, ".....	40 00
" 28,	To Bragg & Stearns, ".....	20 00
" 28,	To T. R. Renwick, ".....	10 00
" 28,	To N. E. Smith, ".....	10 00
" 28,	To expense of orchard committee, reported by C. W. Garfield.....	12 00
" 29,	To Secretary's salary.....	10 00
" 29,	To expense of orchard committee, railroad fare.....	3 00
" 29,	To expense of printing at Traverse meeting.....	3 00
" 29,	To John Gilbert, premium.....	2 35
" 29,	To E. H. Reynolds, premium.....	3 45
" 29,	To I. E. Ilgenfritz & Co., premium.....	4 30
Dec. 3,	To J. W. Humphrey, premium.....	10 00

TREASURER'S REPORT.

149

Dec. 3, To Geo. H. Seymour, Deputy Treasurer.....	\$7 60
" 15, To A. T. Linderman, premium.....	2 00
" 19, To F. F. Kluman, premium.....	3 00
" 23, To postage.....	3 00
" 31, To balance to new account.....	31 26
	\$2,491 96

NOTE.—By direction of the Executive Board of the Michigan State Pomological Society I have examined the above accounts of the Treasurer, and settled with him accordingly, and find all correct.

C. J. DIETRICH, *Auditing Committee.*

Grand Rapids, January 1, 1874.

TOTAL EXPENDITURES.

Total amount expended by S. L. Fuller, Treasurer.....	\$164 01
Total amount expended by Henry Seymour.....	2,460 70
Total expenditures for year 1873.....	\$2,624 71

RECAPITULATION.

Total receipts for year 1873.....	\$2,655 97
Total expenditures for year 1873.....	2,624 71
Balance on hand for new account, January 1, 1874.....	\$31 26

STATEMENT OF RECEIPTS AND EXPENDITURES OF THE MICHIGAN STATE POMOLOGICAL SOCIETY FOR THE MONTH OF JANUARY 1874.

RECEIPTS.

Jan. 1, By balance from 1873.....	\$31 26
" 1, By annual memberships.....	2 00
" 1, By life membership, Baxter.....	10 00
" 1, By avails of check from State Agricultural Society.....	997 50
" 22, By W. J. Beal, life membership.....	10 00
" 22, By Messrs. Sterling, of Monroe, life memberships.....	20 00
" 22, By W. J. Beal, donation.....	12 98
" 23, By annual memberships reported by N. Chilson.....	5 00
Total receipts for January, 1874.....	\$1,088 74

EXPENDITURES.

Jan. 12, To G. B. Rathbun, premium.....	\$5 00
" 12, To postage stamps.....	6 99
" 12, To balance on Secretary's salary, 1873.....	275 00
" 20, To L. E. Patten, pictures for premium.....	22 50
" 20, To H. S. Clubb, expense working up Boston Fair.....	16 15
" 20, To Deputy Sec'y of State, boxes for Report and packing.....	44 55
" 20, To H. E. Bidwell, and others, at South Haven, premiums.....	62 13
" 20, To L. P. Curtis, premium.....	5 00
" 20, To Jos. Flanders, premium.....	8 25
" 20, To J. M. Dean, premium.....	10 00
" 21, To expense of W. W. Tracy as chairman orchard committee, 1872.....	35 00
" 22, To M. W. Bates, loan, life membership fund.....	300 00
" 22, To W. J. Beal, expense chairman orchard committee, 1873.....	22 98
" 23, To G. W. Wilde, premium.....	9 00
" 24, To Mrs. Wm. Rowe, premium.....	6 50
" 29, To Rev. R. Fisk, Jr., expense of lecture at Battle Creek.....	8 35
" 30, To Messrs. Sterling, of Monroe, premiums.....	20 00
" 30, To A. B. Turner & Co., printing premium cards, Fair 1873.....	6 00
" 30, To N. Chilson, freight on books.....	2 50
" 30, To N. Chilson, expense of orchard committee.....	2 50
Balance on hand.....	220 34
	\$1,088 74

SYNOPSIS OF EXPENDITURES FOR 1873 AND JANUARY 1874.

Premiums.....	\$1,595 92
Secretary's salary.....	800 00
Loan life membership.....	300 00
Expenses of Fair, 1873.....	327 93
Expenses of orchard committee, 1873.....	44 33
Expenses of orchard committee, 1872.....	35 00
Printing.....	31 50
Expenses Executive Committee.....	36 55
Expenses Battle Creek meeting.....	10 85
Damage by fire.....	11 50
Expenses Boston Fair.....	16 15
Expenses Treasurer.....	7 60
C. J. Dietrich, Secretary 1872.....	88 50
Postage and check stamps.....	37 14
Drayage, express and freight.....	36 40
Stationery.....	17 30
Note and interest.....	51 54
Secretary of State, boxes and packing books.....	44 55
Exchange.....	35

Total expenses from January 1, 1873, to February 1, 1874..... \$3,493 11

RECAPITULATION OF RECEIPTS AND EXPENDITURES FOR THE YEAR 1873 AND MONTH OF JANUARY 1874.

Total receipts 13 months.....	\$3,713 45
Total expenditures 13 months.....	<u>3,493 11</u>
Balance on hand February 1, 1874.....	<u>\$220 34</u>

REMARKS BY THE TREASURER.

To the President, Executive Committee, and Members of the State Pomological Society:

GENTLEMEN:—I have made as full an expose of the financial affairs of the Society as was possible, giving the items of receipts and expenditures, and also the main heads of the same, as will be noticed. I have treated the month of January, 1874, as a part of the financial year of 1873. This was deemed best because the \$1,000 voted the Society by the State Agricultural Society was not received until January, 1874, and its expenditure was mostly for the debts of 1873.

The main facts made prominent by the report are, that the debt of 1872 is paid; that most of the debts of 1873 are paid; that the amount received for life members since December 1, 1872,—\$300,—is loaned at 10 per cent, and that there is in the treasury, February 1, 1874, \$220.34.

The largest item of expenditure is that for premiums, amounting to near \$1,600. The distribution of this sum cannot but inspire the confidence of exhibitors at our Fairs, and must tend greatly to stimulate competition. I have aimed to pay all premiums, and when gentlemen have donated their premiums, have taken pains to place the amounts on the records in proper shape, so that every donator has credit for his generous action toward the Society.

In December, 1872, \$100 was estimated for expense of fitting an office at Grand Rapids. We have not been obliged to pay out a cent for this purpose. The office of the Society is at No. 56 Canal street, Grand Rapids, where the Deputy Treasurer, S. L. Fuller, makes it headquarters.

It will be noticed that the expenses of the Executive Committee (\$36.55) were trifling. I acknowledge the receipt of a bill from J. M. Sterling, a member of the committee for 1873, amounting to \$35, donated to the Society.

The expenses of the orchard committee were also inconsiderable, in view of the fact that this committee visited all sections of the State. By inspecting the receipts it will be noticed that Prof. Breal donated \$12.98 expenses, making the cash expenditures of the committee only \$31.35,—the balance was donated by the members of the committee.

Mr. Thompson received for his services \$800, which, remembering the fact that he paid his own expenses and devoted nearly all his time to the cause, must be considered very reasonable. Mr. Thompson has my sincere thanks for his valuable aid and co-operation in the management of the finances of the Society. I take occasion to tender thanks to S. L. Fuller, W. N. Cook, Wm. J. Blakely, and Geo. H. Seymour, for assistance rendered in my department. For my own services I have not charged the Society anything, grateful that I am able to render aid in so good a cause.

The debt of 1872, which has been paid, amounted to about \$350.

The shipping of reports from Lansing to Grand Rapids, and their distribution from this point, has been the occasion of much labor, and some expense for freight and cartage. This should be avoided hereafter, and a system of distribution from Lansing should be adopted.

I paid \$44.55 for boxing and packing the reports of the Society at Lansing; this evidently is a bill the State should pay. We might with as much propriety be called upon to pay for printing the reports, as for their distribution and packing. January 20, 1874, I loaned \$300 received for life memberships, for one year, at 10 per cent interest. This is the nucleus of a permanent fund, which I hope to see increased to at least \$10,000.

The revenue of this Society is gained from annual memberships, from its fairs, from donations, and from life memberships.

It is very evident that if we should expend the money received for life memberships, we might eventually cut off a main source of revenue. But if the \$10 paid for a life membership is invested at 10 per cent interest, the product is one dollar per year, just the price of an annual membership, so that a life membership at 10 per cent is a *perpetual life membership*. No revenue is lost.

This fund should be increased to \$10,000, and the Society should not be satisfied with a cent less. To this fund the State should make an annual appropriation, and every member should work for its increase with untiring vigilance. Let this be done, and the society has a sound financial basis.

Respectfully submitted,

HENRY SEYMOUR, *Treasurer*.

Grand Rapids, February 1, 1874.

THE STATE FAIR—1873.

THE EXHIBITION OF THE STATE POMOLOGICAL SOCIETY.

Grand Rapids, Michigan, September 24, 1873.

As would very naturally be anticipated, visitors to Pomological Hall during the recent State Fair, knowing the severity of the past winter, were very generally surprised at the great variety and high quality of the fruits exhibited. The almost universal impression seems to have been that the trees, or at the least the fruit buds, had been so seriously injured by the cold of the past winter that little was to be expected from an exhibition this fall.

Perhaps nothing could have more effectually demonstrated the great value of our lake protection than does the fact of our ability, at such a time, to call together a pomological display very little if at all inferior to that of last year; while in adjoining States the more tender fruits are understood to be almost swept out of existence.

One of the difficulties experienced at last year's exhibition was the extensive duplication of showy and, in many cases, utterly worthless varieties, as a means of creating impressions upon the minds of both committees and visitors not in accordance with the real value of such collections. Since then the rules of the Society have been so modified as to considerably obviate this difficulty.

The gathering of collections of fruit for exhibition had also been done, to a considerable extent, by persons very little conversant with nomenclature; hence in many cases such collections had been placed upon the tables partially or wholly unnamed,—collectors relying on the committee on nomenclature for the attaching of the proper names,—a work, as every pomologist well understands, of extreme difficulty, as well as of great uncertainty in the cases of fruits separated from the trees, and without history or description. Last year this difficulty was so serious that the committee in charge found it impossible to complete the naming of the varieties in time for the action of the viewing committee. To in some degree obviate this difficulty in the future, a rule was adopted forbidding the awarding of premiums upon fruits except when correctly named by the exhibitor.

The effect of these two rules has been to *weed out* a large proportion of the duplications of showy but worthless varieties, and to fill their places at least to some extent with others perhaps of less pretentious appearance, but of greater real value. Still the fact is manifest that the persistent exhibition of a class of showy but really worthless fruits, such as Twenty Ounce Pippin, Chessbro Russet, Pound Sweeting, Pumpkin Russet, and numerous others, may be supposed to have a tendency to encourage the planting of them to a considerable extent; and it may be considered as an open question whether they should not be subjected to such regulation of the Society as shall characterize them as a positive discredit to the collection containing them, as they are certainly held to be by the more considerate and intelligent of our growers and lovers of fruit.

Another difficulty, which last year was somewhat the occasion of complaint, seems on account of the narrowing down of the peach-growing territory by the low temperature of last winter to have become still more noticeable at this exhibition. We allude to the unequal nature of the competition in collections of fruits, between lake shore localities, where the tender fruits can be grown, and the more inland regions of the State. So manifest was this inequality that the awarding committee on county collections, through their chairman, Judge Ramsdell, of Traverse City, in making their report, submitted the proposition that separate premiums be hereafter offered for collections of each class of fruits, so as to provide that apples shall only compete with apples, pears with pears, grapes with grapes, etc.

As might have been anticipated, the lake shore region carried off the lion's share of the premiums on collections of fruit,—the first premium for a county collection having been awarded to Van Buren county, and the second to Grand Traverse, while the third went to Wayne county. These premiums are understood to have been so awarded for the reason that the two former collections embraced peaches and plums, while the last, although doubtless exceeding both the others in number of varieties, was entirely lacking in these,—a fact that will be the better understood from the circumstances that while the two former were really collections, the last was entirely the product of a single town, and in fact of a single orchard in that county.

By far the largest collection of named varieties of apples was exhibited by J. W. Humphrey, of Plymouth, and this exhibition, embracing also pears and grapes, was awarded the first premium for correctness of nomenclature. A collection of finely grown varieties was shown from Clinton county, and also one from Eton county. The Van Buren county collection, which carried off the first premium, was less noticeable for its apples than for other classes of fruits, while the apples from Grand Traverse, although far from mature, were especially noticeable for their smooth, glossy skin, and general freedom from the marks of insects.

Several very fine collections from towns were on exhibition, among which that from Monroe was noticeable for a fine show of pears, and that from Spring Lake included a very superior display of grapes; and as proof that the past winter has not extinguished them, they show some fine peaches. The town of Walker, Kent county, also showed a very noticeable collection of apples.

The plates of apples competing for the premiums on single varieties were mostly arranged together in the center of the hall, and made a beautiful display. Red Canada carried off the first premium as the best winter apple, and Wagener the second.

The display of peaches was by no means large, and as has been already remarked, was confined mainly to exhibitions from the east shore of Lake Michigan. Crawford's Early and Barnard were the most prominent, although Crawford's Late, Hill's Chili, and others of the later varieties, were shown in an unripe state. Hale's Early was nearly or quite out of season, except at Grand Traverse, from which place very beautiful specimens were shown. Nothing in the way of peaches, however, seemed to elicit so much attention as did a couple of plates of Coolidge's Favorite, grown at Grand Traverse, and which for fine size and beauty of coloring were hard to beat.

Plums were shown in a majority of the collections, although not in large quantities. The number of varieties exhibited was not large, the more noticeable ones being Lombard, Yellow Egg, Coe's Golden Drop, Buvay's Green Gage, Washington, and some others. A seedling shown by N. P. Husted, of Lowell, seemed to possess some valuable points.

Pears appeared in nearly all the collections, and those in the Van Buren county exhibition were some of them very fine. The same was true of those from Monroe county, and also from Mr. Husted, of Lowell. Very many of the varieties shown were comparatively small and indifferent in appearance, showing the season to be unfavorable for this fruit.

Grapes were shown in very considerable quantities, and were generally of very fine quality, although we observed that generally they were less mature than is usually the case at this season. We especially observed that Delawares and Israellas from Grand Traverse were but slightly colored, while Ionas from that region were yet entirely green. The finest display of this fruit, by a single individual, was from Mr. Bradfield, of Ada, Kent county, grown upon plants the most of which were killed to the ground by the cold of last winter. They were beautifully grown, and generally well ripened, and the collection embraced nearly all the native varieties of any note. A few bunches of Mer-rimac (Rogers' 19), grown by what is known as the "ringing process," were nearly or quite as large in the berry as well grown Black Hamburg, but they of course lacked quality. The show of grapes in the collection from Spring Lake was especially fine; the quantity was large and the specimens beautifully grown. Croton, the new white grape sent out recently by Dr. Underhill, was shown in several collections, but do not seem to be doing as well as in previous years. A very beautiful exhibition of foreign grapes, grown under glass, was made by an exhibitor whose name and address is forgotten; also a similar one from the graperies of Capt. E. B. Ward, of Detroit. A very large and fine exhibition of grapes, and also of wines, was made by J. M. Sterling, of Monroe, from the vineyards and wine cellars of the Point au Peaux Company.

From the Grand Rapids Eagle, September 17, 1873.

POMOLOGICAL HALL,

that is to say, the hall of the State Pomological Society, lies next south of Art Hall. The enlargement of room in this, to meet the increased demand for the showing of Michigan fruits, has been obtained by the addition of twenty-five per cent more of shelving, and more economy in the shelf-room as it was before. The dimensions of this hall remain unchanged,—44 feet by 120, and 14 feet posts.

THE DISPLAY OF FRUIT

here is nothing less than wonderful, and after all the fears that have spread abroad concerning the effect of last winter's terrible severe weather upon fruit culture in this State, this superabundant and lordly heaping up of earth's choicest riches seems to challenge the Arctic lances to pierce our orchards to their utmost power.

THIRTY-FOUR HUNDRED PLATES

of fruit are here crowded upon the long tiers of shelves, many of them holding two or more varieties. All day the number of visitors in this department have been assorting and arranging specimens of our home pomological bounty, that will cause all the thousands who will see them during this week to rejoice that they live in Michigan, where kindly Nature yields such glorious returns for the reward of the husbandman. The display of fruit this year is enormous, and notwithstanding the increase in shelving, every available niche of room in the hall is crowded with a wonderful profusion of apples, peaches, plums, pears, grapes, quinces, many hundreds of varieties, all that are grown in this State and on its borders; flowers of rarest beauty, hundreds of varieties; canned fruits, preserved fruits, dried fruits, fruits in all manner of shapes, wines, jellies,—in fact anything that Pomona's bounteous hand rewards the

labors of horticulturists with in Michigan. Many of the exhibitors are unable to make the display they would, because they have not room. Some of the displays will have to be placed out doors near the hall.

In the middle of the hall, throughout nearly its whole length, are double stands, three feet wide, holding sand a few inches deep, in which are placed cut flowers in glasses, or with stems stuck into the sand. Every few feet along the walls is an oil painting, chromo or engraving, kindly loaned by Mr. L. E. Patten, of this city, to handsomely relieve the bare walls.

REGISTER OF ENTRIES, 1873.

DIVISION A.—ORCHARDS AND VINEYARDS.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Aug. 15.	A.	5	1	Apple orchard without succession.	J. B. Soule	Fruitport.
" 15.	"	12	2	Peach " "	" "	" "
" 15.	"	15	3	" " with succession	" "	" "
" 15.	"	45	4	Monroe Nursery	I. E. Igenfritz & Co.	Monroe.
" 15.	"	27	5	Delaware Vineyard	J. G. Ramsdell	Traverse City.
" 15.	"	45	6	Lowell Nursery	N. P. Husted	Lowell.
" 15.	"	45	7	Union Nursery	L. G. Bragg & Co.	Kalamazoo.
" 15.	"	44	9	Commercial Plant House	T. R. Renwick	Grand Rapids.
" 15.	"	23	11	Vineyard with succession	Wm. G. Wheaton	Kalamazoo.
" 15.	"	32	12	Plat Strawberries	L. G. Bragg & Co.	" "
" 15.	"	33	13	" Red Raspberries	" "	" "
" 15.	"	34	14	" Black Cap Raspberries	" "	" "
" 15.	"	44	15	Commercial Plant House	John Suttle	Grand Rapids.
Sept. 26.	"	5	19	Apple Orchard for Profit.	Joseph Gridley	Kalamo.
" 26.	"	7	20	" " for profit without suc'n.	" "	" "
Aug. 28.	"	26	21	Concord Vineyard	N. E. Smith	Ionia.
" 28.	"	26	22	Delaware Vineyard	" "	" "
" 30.	"	1	23	Apple Orchard	L. H. Bailey	South Haven.
" 30.	"	1	24	" "	W. H. Hurlburt	" "
" 30.	"	5	25	" "	" "	" "
" 30.	"	10	26	Pear Orchard	— Loveday	" "
" 30.	"	6	27	Apple Orchard	Joseph Dow	" "
" 30.	"	8	28	Pear Orchard	Joseph Lennin	" "
" 30.	"	26, 27	29	D. & C. Vineyard	Wigglesworth & Hiestad	" "
" 30.	"	84	30	Raspberry Patch	" "	" "
" 30.	"	35	31	Blackberry	" "	" "
" 30.	"	32	32	Strawberry	" "	" "
" 30.	"	17	33	Plum Orchard	" "	" "
" 30.	"	2	34	Apple Orchard with succession	L. S. Clark	Cascade.
" 30.	"	2	35	" " " " " "	L. P. Curtis	South Lowell.
" 30.	"	2	36	" " " " " "	Jas. & Isaac Brennan	" "
" 30.	"	2	37	" " " " " "	Alanson Calkins	" "
" 30.	"	2	38	" " " " " "	David Yelter	" "
" 30.	"	2	39	" " " " " "	John Yelter	" "
" 30.	"	2	40	" " " " " "	Fred Yelter	" "
" 30.	"	1	41	" " " " " "	Jeremiah Bridges	Bangor.
" 30.	"	15	42	Peach Orchard	" "	" "
" 30.	"	4	43	Apple Orchard	A. R. Sherburne	Covert.
" 30.	"	14	44	Peach Orchard	M. F. Smith	South Haven.
" 30.	"	15	45	" " with succession	J. M. Dean	G. Rapids town.
" 30.	"	28	46	Vineyard, for table use.	" "	" "
" 30.	"	14	47	Peach Orchard	J. Dage	Bangor.
" 30.	"	28	48	Vineyard, for table use.	N. C. Sterling	Monroe.
" 30.	"	29	49	Vineyard	P'te Aux Peaux Wine Co.	" "
" 30.	"	24	49	Vineyard for profit, succession	J. M. Sterling	" "
" 30.	"	2	50	Apple Orchard	" "	" "
" 30.	"	26	51	Concord Vineyard	Geo. W. Bruckner	" "
" 30.	"	22	52	Raisin Valley Vineyard	" "	" "
" 30.	"	25	53	Vineyard of Native Grapes.	" "	" "
" 30.	"	28	54	" " for table use	" "	" "
" 30.	"	29	55	" " for wine	" "	" "
" 30.	"	45	56	Gen'l Nurs'y—Monroe City Nurs'y	Diedrich & Brisacker	Detroit.
" 30.	"	14	57	Peach Orchard for profit.	Reynolds, Lewis & Co.	Monroe.
" 30.	"	14	58	" " " " " "	A. T. Pennyman	South Haven.
" 30.	"	15	59	" " " " " "	H. J. Linderman	" "
" 30.	"	15	60	" " " " " "	A. Cook	" "
" 30.	"	15	61	" " " " " "	T. W. Bishop	" "
" 30.	"	15	62	" " " " " "	H. J. Linderman	" "
" 30.	"	15	63	" " " " " "	C. T. Bryant	Bangor.
" 30.	"	33	63	Red Raspberry Plat	Wigglesworth & Hiestad	South Haven.
" 30.	"	28	---	Vineyard, for table use.	W. C. Starke	Monroe.
" 30.	"	18	---	Plum Orchard	C. T. Bryant	South Haven.

REGISTER OF ENTRIES, 1873, AT THE STATE FAIR.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 7.	N.	1	1	Collection American Wines,—H. Mershon, Agent	Urbana Wine Company,—Hammondsport, N. Y.	Grand Rapids.
" 7.	"	7	2	Delaware Wine	Urbana Wine Company	" "
" 7.	"	8	3	Isabella Wine, sweet and sour	" " "	" "
" 7.	"	9	4	Iona Wine	" " "	" "
" 7.	P.	2	6	Collection of Flowers for conservatory and ornamental purposes	John Suttle	" "
" 7.	"	3	7	Collection of Abutilons	" "	" "
" 7.	"	4	8	Abutilon, single variety	" "	" "
" 7.	"	5	9	Collection Geraniums	" "	" "
" 7.	"	6	10	" Zonale Geraniums	" "	" "
" 7.	"	7	11	Zonale Geranium, single	" "	" "
" 7.	"	8	12	Col'n double flowering Geraniums	" "	" "
" 7.	"	9	13	Double Geranium, single variety	" "	" "
" 7.	"	10	14	Collection Scented Geraniums	" "	" "
" 7.	"	11	15	Scented Geranium, single	" "	" "
" 7.	"	12	16	Collection gold, silver, and bronze leaved Geraniums	" "	" "
" 7.	"	13	17	Variegated leaved Geraniums	" "	" "
" 7.	"	14	18	Collection Ivy leaved Geraniums	" "	" "
" 7.	"	15	19	Ivy Geranium	" "	" "
" 9.	"	17	20	Collection of Fuschias	" "	" "
" 9.	"	18	21	Fuschia, single variety	" "	" "
" 9.	"	19	22	Fuschia, double variety	" "	" "
" 9.	"	20	23	Collection Monthly Roses	" "	" "
" 9.	"	21	24	Monthly Rose	" "	" "
" 9.	"	24	25	Hoya or Wax Plant	" "	" "
" 9.	"	25	26	Collection of Begonias	" "	" "
" 9.	"	26	27	Flowering Begonia, single plant	" "	" "
" 9.	"	27	28	Ornamental leaved Begonia	" "	" "
" 9.	"	28	29	Collection Winter Blooming plants	" "	" "
" 9.	"	29	30	Col. Ornamental Foliage plants	" "	" "
" 9.	"	30	31	Ornamental Foliage Plant, single variety	" "	" "
" 9.	"	31	32	Collection Parlor Climbers	" "	" "
" 9.	"	32	33	Parlor Climber, single variety	" "	" "
" 9.	"	33	34	Collection Cacti	" "	" "
" 9.	"	34	35	Cacti, single variety	" "	" "
" 9.	"	35	36	Collection Ferns	" "	" "
" 9.	"	36	37	" Native Ferns	" "	" "
" 9.	"	37	38	Fern, single variety	" "	" "
" 9.	"	38	39	Collection Mosses	" "	" "
" 9.	"	41	40	Basket Plants	" "	" "
" 9.	"	42	41	Hanging Basket Filled	" "	" "
" 9.	"	43	42	Wardian Case	" "	" "
" 9.	"	44	43	Bouvardia	" "	" "
" 9.	Q.	1	44	Collection Bedding Plants	" "	" "
" 9.	"	2	45	" Verbenas	" "	" "
" 9.	"	4	46	" Lantanas	" "	" "
" 9.	"	5	47	" Carnation Pinks	" "	" "
" 9.	"	7	48	" Foliage Plants	" "	" "
" 9.	"	8	49	" Coleus	" "	" "
" 9.	"	9	50	" Achryanthus	" "	" "
" 9.	"	10	51	Pyrethrum	" "	" "
" 9.	"	11	52	Verbena, single variety	" "	" "
" 9.	"	12	53	Seedling Verbena, 1873	" "	" "
" 9.	"	14	54	Heliotrope, single cach	" "	" "
" 9.	"	15	55	Lantana	" "	" "
" 9.	"	17	56	Petunia, single	" "	" "
" 9.	"	18	57	Petunia, double	" "	" "
" 9.	"	19	58	Coleus	" "	" "
" 9.	"	20	59	Achryanthus	" "	" "
" 9.	"	21	60	Cen. aurea	" "	" "
" 9.	"	23	61	Salvia	" "	" "
" 9.	"	24	62	Aloysia (lemon verberna)	" "	" "
" 9.	"	25	63	Carnation Pink	" "	" "
" 9.	"	26	64	Argeratum	" "	" "
" 9.	R.	4	65	Collection Petunias	" "	" "
" 9.	"	8	66	" Phlox Drummondii	" "	" "
" 9.	"	9	67	" Asters	" "	" "
" 9.	"	10	68	" Ten Weeks' Stock	" "	" "
" 9.	"	16	69	" Chrysanthemums	" "	" "
" 9.	"	21	70	Pink, single	" "	" "
" 9.	"	22	71	Phlox Drummondii, single	" "	" "
" 9.	"	23	72	Aster, single variety	" "	" "
" 9.	"	24	73	Ten Weeks' Stock, single variety	" "	" "
" 9.	"	25	74	Zinnia, double, single variety	" "	" "
" 9.	"	29	75	Hybrid Perpetual Rose, single v'ty.	" "	" "
" 9.	"	30	76	Hybrid Rose, single variety	" "	" "

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 9.	R.	32	77	Collection tender Roses, in bloom.	John Suttle	Grand Rapids.
" 9.	"	33	78	Single Rose, in bloom.	" "	" "
" 9.	S.	2	79	Collection Dahlias.	" "	" "
" 9.	"	4	80	" Tuberoses.	" "	" "
" 9.	"	7	81	" Dissimilar Dahlias.	" "	" "
" 9.	"	8	82	Dahlia, single variety.	" "	" "
" 9.	"	11	83	Canna, three plants.	" "	" "
" 9.	"	13	84	Calladiums, three plants.	" "	" "
" 9.	"	14	85	Lily, single variety.	" "	" "
" 9.	T.	7	86	Pair Round Bouquets.	" "	" "
" 9.	"	8	87	Pair Flat Bouquets.	" "	" "
" 9.	"	16	88	Rustic Basket.	" "	" "
" 10.	Spe cial.	103	Collection Flower Pots and Vases.	Samuel Davis.	" "	
" 10.	"	"	104	Ornamental Vases, - 6 kinds.	" "	" "
" 10.	"	"	105	Plain Vases, - 6 kinds.	" "	" "
" 10.	"	"	106	Hanging Baskets, - 82 kinds.	" "	" "
" 10.	N.	11	107	Wine, Port, made in California.	G. W. Jarvis, - A. Brad-	Santa Cruz, Cal.
" 10.	"	11	108	Wine, Sherry, made in California.	ford, G. Rapids, Agent }	"
" 10.	K.	5	109	Dried apples.	Mrs. D. Schermerhorn	Grand Rapids.
" 11.	"	6	110	" pears.	" "	" "
" 11.	"	7	111	" peaches.	" "	" "
" 11.	"	8	112	" plums.	" "	" "
" 11.	"	9	113	" cherries.	" "	" "
" 11.	"	10	114	" strawberries.	" "	" "
" 12.	"	12	115	" blackberries.	" "	" "
" 12.	"	13	116	" whortleberries.	" "	" "
" 12.	"	15	117	" currants.	" "	" "
" 12.	"	19	118	" pumpkins.	" "	" "
" 12.	"	21	119	" corn.	" "	" "
" 12.	"	24	120	" tomatoes.	" "	" "
" 12.	L.	4	121	Canned apples.	" "	" "
" 12.	"	5	122	" pears.	" "	" "
" 12.	"	6	123	" peaches.	" "	" "
" 12.	"	7	124	" plums.	" "	" "
" 12.	"	8	125	" cherries.	" "	" "
" 12.	"	9	126	" Siberian apples.	" "	" "
" 12.	"	10	127	" strawberries.	" "	" "
" 12.	"	11	128	" raspberries.	" "	" "
" 12.	"	12	129	" blackberries.	" "	" "
" 12.	"	13	130	" whortleberries.	" "	" "
" 12.	"	15	131	" gooseberries.	" "	" "
" 12.	"	16	132	" currants.	" "	" "
" 12.	"	17	133	" pie-plant.	" "	" "
" 11.	"	18	134	" grapes.	" "	" "
" 11.	"	19	135	" tomatoes.	" "	" "
" 11.	"	20	136	" corn.	" "	" "
" 11.	"	25	137	Pickled apples.	" "	" "
" 11.	"	30	138	" tomatoes.	" "	" "
" 11.	"	31	139	" cucumbers.	" "	" "
" 11.	"	32	140	" beans.	" "	" "
" 11.	"	34	141	Catsup.	" "	" "
" 11.	Spe cial.	142	Pickled muskmelon.	" "	" "	
" 11.	M.	2	143	Cider apple sauce.	" "	" "
" 11.	"	19	144	Currant jelly.	" "	" "
" 11.	"	21	145	Siberian Crab jelly.	" "	" "
" 11.	"	23	146	Raspberry jelly.	" "	" "
" 11.	"	24	147	Blackberry jelly.	" "	" "
" 11.	"	26	148	Quince jelly.	" "	" "
" 11.	"	28	149	Apple butter.	" "	" "
" 11.	P.	5	150	Collection Geraniums.	William Rowe.	Walker.
" 11.	"	29	151	" ornamental foliage pl'ts.	" "	" "
" 11.	"	42	152	Hanging basket.	" "	" "
" 11.	Q.	2	153	Collection Verbenas.	" "	" "
" 11.	"	8	154	" Coleus.	" "	" "
" 11.	"	11	155	Verbena, single variety.	" "	" "
" 11.	"	14	156	Heliotrope, single variety.	" "	" "
" 11.	"	24	157	Aloysia, lemon verberna.	" "	" "
" 11.	"	26	158	Argeratum.	" "	" "
" 11.	R.	1	159	Collection hardy and half hardy shrubs, etc.	" "	" "
" 11.	"	2	160	Collection Pansies.	" "	" "
" 11.	"	3	161	" Antirrhiums.	" "	" "
" 11.	"	4	162	" Petunias.	" "	" "
" 11.	"	7	163	" Annuals.	" "	" "
" 11.	"	8	164	" Phlox Drummond.	" "	" "
" 11.	"	9	165	" Asters.	" "	" "
" 11.	"	10	166	" ten weeks' stock.	" "	" "
" 11.	"	13	167	" everlasting flowers.	" "	" "
" 11.	"	14	168	" ornamental grasses.	" "	" "

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 11.	R.	17	169	Pansy, single variety	William Rowe	Walker.
" 11.	"	18	170	Antirrhinum, single	" "	"
" 11.	"	21	171	Pink, single	" "	"
" 11.	"	22	172	Phlox Drummond, single	" "	"
" 11.	"	24	173	Ten Weeks' Stock, single	" "	"
" 11.	"	25	174	Zinnia double, single	" "	"
" 11.	"	26	175	Coxcomb, single	" "	"
" 11.	P.	1	176	Ornamental arrangement fruit	" "	"
" 11.	"	8	177	Pair flat bouquets	" "	"
" 11.	"	9	178	Collection bouquets	" "	"
" 11.	"	11	179	Bouquet dried everlasting flowers	" "	"
" 11.	"	13	180	Hanging basket flowers	" "	"
" 11.	Spec. clal.		181	Cut flowers, collection	" "	"
" 11.	"	"	182	Phlox Drummond, collection	" "	"
" 11.	"	"	183	Asters, collection	" "	"
" 11.	"	"	184	Balsams, collection	" "	"
" 11.	"	"	185	Dianthus, family collection	" "	"
" 11.	"	"	186	Pansies, collection	" "	"
" 11.	"	"	187	Stocks, collection	" "	"
" 11.	"	"	188	Everlasting flowers and grasses	" "	"
" 11.	G.	6	189	Delaware Grapes	J. M. Dean	Grand Rapids.
" 11.	"	8	190	Concord Grapes	" "	"
" 12.	"	15	191	Martha Grapes, white	" "	"
" 12.	O.	3	192	Col. ornamental nursery stock	Geo. Taylor	Kalamazoo.
" 13.	B.	4	193	fruit grown by exhibitor	N. P. Husted	Lowell.
" 13.	C.	1	194	summer apples rec'd by Socy	" "	"
" 13.	"	2	195	autumn " " " "	" "	"
" 13.	"	3	196	winter " " " "	" "	"
" 13.	"	4	197	summer pears " " " "	" "	"
" 13.	"	5	198	autumn " " " "	" "	"
" 13.	"	10	199	plums, for all purposes, recommended by Society	" "	"
" 13.	"	11	200	Col. grapes, recommended by Soc.	" "	"
" 13.	D.	1	201	apples grown by exhibitor, nomenclature qual., spec'n to govern.	" "	"
" 13.	"	2	202	Plate single variety summer apples	" "	"
" 13.	"	3	203	" " autumn	" "	"
" 13.	"	4	204	" " winter	" "	"
" 13.	"	15	205	Early Joe	" "	"
" 13.	"	17	206	Lowell	" "	"
" 13.	"	18	207	Porter	" "	"
" 13.	"	20	208	20-oz. (Cayuga Red Streak)	" "	"
" 13.	"	21	209	Cheuanguo Strawberry	" "	"
" 13.	"	34	210	Rhode Island Greening	" "	"
" 13.	"	35	211	Baldwin	" "	"
" 13.	"	36	212	Red Canada	" "	"
" 13.	"	37	213	Golden Russet	" "	"
" 13.	"	38	214	Roxbury Russet	" "	"
" 13.	"	39	215	Wagner Russet	" "	"
" 13.	"	40	216	Northern Spy	" "	"
" 13.	"	42	217	Fameuse (Snow)	" "	"
" 13.	"	43	218	Bailey Sweet	" "	"
" 13.	"	44	219	Westfield Seek-no-further	" "	"
" 13.	"	45	220	Hubbardston Nonsuch	" "	"
" 13.	"	46	221	King of Tompkins Co.	" "	"
" 13.	"	47	222	Yellow Bellflower	" "	"
" 13.	"	48	223	Talman Sweet	" "	"
" 13.	"	51	224	Grimes' Golden	" "	"
" 13.	"	52	225	Swaar	" "	"
" 13.	"	53	226	Esopus Spitzenberg	" "	"
" 13.	"	54	227	Melon	" "	"
" 13.	"	56	228	Collection Siberian crab apples	" "	"
" 13.	"	57	229	Single variety Siberian crab apples	" "	"
" 13.	"	58	230	Transcendent crab	" "	"
" 13.	"	59	231	Large Red crab	" "	"
" 13.	"	60	232	Montreal beauty crab	" "	"
" 13.	"	61	233	Hyslop crab	" "	"
" 13.	E.	3	234	Plate autumn pears	" "	"
" 13.	"	4	235	" winter pears	" "	"
" 13.	"	13	236	" Bartlett pears	" "	"
" 13.	"	15	237	" Flemish Beauty pears	" "	"
" 13.	"	16	238	" Seckel pears	" "	"
" 13.	"	18	239	" White Doyenne pears	" "	"
" 13.	"	20	240	" Clapp's Favorite pears	" "	"
" 13.	"	21	241	" Sheldon pears	" "	"
" 13.	G.	6	242	Five bunches Delaware grapes	" "	"
" 13.	"	8	243	" " Concord grapes	" "	"
" 13.	"	10	244	" " Ives' Seedling grapes	" "	"
" 13.	"	12	245	" " Agawam grapes	" "	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 13.	G.	14	246	Five bunches Creveling grapes	N. P. Husted	Lowell.
" 13.	"	16	247	" " Rebecca grapes	" "	"
" 13.	H.	1	248	Col. plums, 6 varieties or more	" "	"
" 13.	"	8	249	Plate plums, Lombard	" "	"
" 13.	"	6	250	" " Bayay's Green Gage	" "	"
" 13.	"	17	251	" " variety not in catal.	" "	"
" 13.	I.	8	252	Seedling plums, 5 well-grown spec's.	" "	"
" 13.	M.	21	253	Jelly, Siberian crab	" "	"
" 13.	N.	11	254	Sample native wine not in list	" "	"
" 13.	O.	2	255	Col. nursery stock, prod. of Mich. f'd	" "	"
" 13.	"	3	256	Collec'n ornamental nursery stock, products of Michigan	" "	"
" 13.	"	5	257	10 apple trees, 2 yr., 5 va. or more	" "	"
" 13.	"	6	258	Collection trees, 2 years, variety recommended by Soc., labelled	" "	"
" 13.	"	7	259	10 budded peach trees, 1 yr., 5 va.	" "	"
" 13.	"	8	260	10 grape vines, 5 varieties or more	" "	"
" 13.	"	10	261	Plate Sweet Bough	S. M. Pearsall	Alpine.
" 13.	"	21	262	" Chenango Strawberry	" "	"
" 13.	"	34	263	" R. I. Greening	" "	"
" 13.	"	35	264	" Baldwin	" "	"
" 13.	"	40	265	" Northern Spy	" "	"
" 13.	"	42	266	" Fameuse (Snow)	" "	"
" 13.	D.	48	267	" Talman Sweet	" "	"
" 13.	"	53	268	" Esopus Spitzenberg	" "	"
" 13.	"	55	269	" Pound Royale	" "	"
" 13.	"	55	270	" Fallwater	" "	"
" 13.	B.	2	271	Display of fruits from Alpine town.	" "	"
" 13.	G.	8	272	Five bunches Concord (2 boxes)	Henry P. Hanford	Bristol, Indiana
" 13.	"	9	273	" " Iona (1 box)	" "	"
" 13.	"	10	274	" " Ives' Seedling (1 box)	" "	"
" 13.	"	11	275	" " Diana (1 box)	" "	"
" 13.	"	18	276	One Box Perkins	" "	"
" 13.	"	19	277	Two boxes Wilder, Rogers' 4	" "	"
" 13.	Spe cial.	278	278	Collection Pansies	Mrs. D. L. Arnold	Grand Rapids.
" 13.	L.	7	279	Canned plums (2 cans)	Mrs. W. N. Cook	"
" 13.	E.	8	280	Plate autumn pears (Flem. Beauty)	" "	"
" 13.	"	15	281	" Flemish Beauty	" "	"
" 15.	Q.	12	282	Seedling Verbenas	Mrs. D. L. Arnold	"
" 15.	R.	25	283	Double Zenias	" "	"
" 15.	"	26	284	Coxcomb	" "	"
" 15.	"	4	285	Abutilon	" "	"
" 15.	P.	9	286	Double Geranium	D. L. Arnold	"
" 15.	"	11	287	Scented Geranium	" "	"
" 15.	R.	22	288	Phlox Drummondii	" "	"
" 15.	G.	6	2-9	5 bunches Delaware	G. W. Dickinson	"
" 15.	"	18	290	Any val. variety,—Isabella	" "	"
" 15.	L.	15	291	Canned gooseberries	Mrs. G. W. Dickinson	"
" 15.	"	16	292	" currants	" "	"
" 15.	"	19	293	" tomatoes	" "	"
" 15.	"	20	294	" corn	" "	"
" 15.	"	31	295	Pickled cucumbers	" "	"
" 15.	"	34	296	Catsup	" "	"
" 15.	B.	2	297	Township collection	Wm. N. Rowe	Walker.
" 15.	D.	17	298	Plate Lowell	" "	"
" 15.	"	19	299	" Keswick's Codlin	" "	"
" 15.	"	20	300	" Cayuga Red Streak	" "	"
" 15.	"	21	301	" Chenango Strawberry	" "	"
" 15.	"	26	302	" Fall Pippin	" "	"
" 15.	"	31	303	" Autumn Swaar	" "	"
" 15.	"	32	304	" Jonathan	" "	"
" 15.	"	34	305	" R. I. Greening	" "	"
" 15.	"	35	306	" Baldwin	" "	"
" 15.	"	36	307	" Red Canada	" "	"
" 15.	"	37	308	" Golden Russet	" "	"
" 15.	"	38	309	" Roxbury Russet	" "	"
" 15.	"	39	310	" Wagener	" "	"
" 15.	"	40	311	" Northern Spy	" "	"
" 15.	"	42	312	" Fameuse	" "	"
" 15.	"	44	313	" Westfield Seek-no-further	" "	"
" 15.	"	45	314	" Hubbardston Nonsuch	" "	"
" 15.	"	46	315	" King of Tompkins Co.	" "	"
" 15.	"	48	316	" Talman Sweet	" "	"
" 15.	"	52	317	" Swaar	" "	"
" 15.	"	57	318	Siberian crab, single variety	" "	"
" 15.	"	58	319	Transcendent crab	" "	"
" 15.	"	47	320	Yellow Bellflower	" "	"
" 15.	E.	15	321	Plate Flemish Beauty	" "	"
" 15.	"	16	322	" Seckel	" "	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 15.	E.	20	823	Plate Clapp's Favorite.....	Wm. N. Rowe.....	Walker.
" 15.	J.	2	824	" quinces.....	" ".....	"
" 15.	"	5	825	Collection native nuts.....	" ".....	"
" 15.	"	14	826	Plate peanuts.....	" ".....	"
" 15.	U.	3	827	Fruit Piece in oil.....	" ".....	"
" 15.	K.	11	828	Dried raspberries.....	Mrs. D. Shermethorn.....	Grand Rapids.
" 15.	N.	19	829	Gallon cider.....	" ".....	"
" 15.	"	20	830	Bottled cider.....	" ".....	"
" 15.	"	21	831	Bottled cider.....	" ".....	"
" 15.	K.	5	832	Dried apples.....	C. J. Dietrich.....	"
" 15.	"	6	833	" pears.....	" ".....	"
" 15.	"	7	834	" peaches.....	" ".....	"
" 15.	"	8	835	" plums.....	" ".....	"
" 15.	"	9	836	" cherries.....	" ".....	"
" 15.	"	10	837	" strawberries.....	" ".....	"
" 15.	"	11	838	" raspberries.....	" ".....	"
" 15.	"	12	839	" blackberries.....	" ".....	"
" 15.	"	13	840	" whortleberries.....	" ".....	"
" 15.	"	14	841	" quinces.....	" ".....	"
" 15.	"	15	842	" currants.....	" ".....	"
" 15.	"	18	843	" asparagus.....	" ".....	"
" 15.	"	19	844	" pumpkin.....	" ".....	"
" 15.	"	20	845	" peas.....	" ".....	"
" 15.	"	21	846	" corn.....	" ".....	"
" 15.	"	23	847	" crab apples.....	" ".....	"
" 15.	"	24	848	" tomatoes.....	" ".....	"
" 15.	"	26	849	" pie-plant.....	" ".....	"
" 15.	"	28	850	" squashes.....	" ".....	"
" 15.	"	29	851	" sweet potatoes.....	" ".....	"
" 15.	"	30	852	" beans.....	" ".....	"
" 15.	"	31	853	" Irish potatoes.....	" ".....	"
" 15.	N.	11	854	Creme de Rose wine.....	B. Joppe.....	"
" 15.	"	11	855	Mawas Quince.....	" ".....	"
" 15.	Spe cial.	356	856	Elixir Bitters.....	" ".....	"
" 15.	L.	80	857	Pickled tomatoes.....	Mrs. G. W. Dickinson.....	"
" 15.	D.	45	358	Plate Hubbardston Nonsuch.....	Lewis R. Davis.....	Bowen Station.
" 15.	"	40	359	" Northern Spy.....	" ".....	"
" 15.	"	44	360	" Westfield Seek-no-further.....	" ".....	"
" 15.	"	55	361	" Pound sweet.....	" ".....	"
" 15.	"	55	362	" Black Jillflower.....	" ".....	"
" 15.	"	55	363	" Striped Jillflower.....	" ".....	"
" 15.	"	55	364	" Alexander.....	" ".....	"
" 15.	"	42	365	" Fameuse (Snow).....	" ".....	"
" 15.	"	26	366	" Fall Pippin.....	" ".....	"
" 15.	"	37	367	" Golden Russet.....	" ".....	"
" 15.	B.	1	368	Eaton Co. collection.....	Joseph Gridley.....	Kalamo.
" 15.	"	2	369	Kalamo town collection.....	" ".....	"
" 15.	"	4	370	Col. fruit grown by exhibitor.....	" ".....	"
" 15.	D.	1	371	" apples grown by exhibitor.....	" ".....	"
" 15.	"	2	372	Plate summer apples.....	" ".....	"
" 15.	"	3	373	" autumn apples.....	" ".....	"
" 15.	"	4	374	" winter apples.....	" ".....	"
" 15.	U.	8	375	Fruit chromo.....	W. I. Blakelee.....	Grand Rapids.
" 15.	"	---	---	<i>Vick's special list under 20:</i>	" ".....	"
" 15.	"	---	---	Collection cut flowers.....	Chas. Wild.....	Berlin.
" 15.	"	---	---	Phlox Drummond.....	" ".....	"
" 15.	"	---	---	Collection stocks.....	" ".....	"
" 15.	"	---	---	<i>Vick's special list over 20:</i>	" ".....	"
" 15.	"	---	---	Phlox Drummond.....	" ".....	"
" 15.	"	---	---	Collection stocks.....	" ".....	"
" 15.	Q.	2	381	Col. verbenas, 10 or more.....	" ".....	"
" 15.	"	11	382	Verbena, single variety.....	" ".....	"
" 15.	"	12	383	" seedling, 1873.....	" ".....	"
" 15.	R.	8	384	Phlox Drum., 10 or more varieties.....	" ".....	"
" 15.	"	22	385	" " single variety.....	" ".....	"
" 15.	"	24	386	Ten weeks' stock, single variety.....	" ".....	"
" 15.	"	11	387	Coxcomb, 10 or more.....	" ".....	"
" 15.	"	26	388	" " single variety.....	" ".....	"
" 15.	"	25	389	Double Zenia, single variety.....	" ".....	"
" 15.	S.	2	390	Col. Dahlias, 10 or more.....	" ".....	"
" 15.	"	8	391	Dahlia, single variety.....	" ".....	"
" 15.	I.	10	392	Seedling crab.....	A. Baldwin.....	Coldwater.
" 15.	M.	20	393	Apple jelly.....	C. P. Friend.....	Grand Rapids.
" 15.	"	25	394	Cider jelly.....	" ".....	"
" 15.	"	23	395	Apple butter.....	" ".....	"
" 15.	K. Spec.	396	396	Medical herbs and roots.....	H. Julian Allen & Co.....	Niles.
" 15.	"	---	---	Pressed Herbs.....	" ".....	"
" 15.	P.	18	398	Fuschia.....	James Craigh.....	Lamont.
" 15.	D.	26	399	Fall Pippin.....	" ".....	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 15.	D.	17	400	Plate Lowell.....	James Craigh.....	Lamont.
" 15.	"	55	401	" Williams Favorite.....	" ".....	"
" 15.	"	55	402	" Munson Sweet.....	" ".....	"
" 15.	"	55	403	" Grindstone.....	" ".....	"
" 15.	"	55	404	" Pound Sweet.....	" ".....	"
" 15.	"	55	405	" Cabashaw.....	" ".....	"
" 15.	"	55	406	" Fall Orange.....	" ".....	"
" 15.	"	55	407	" For a name.....	" ".....	"
" 15.	"	55	408	" ".....	" ".....	"
" 15.	"	55	409	" ".....	" ".....	"
" 15.	"	55	410	" Good Enough.....	" ".....	"
" 15.	"	55	411	" French Pippin.....	" ".....	"
" 15.	"	55	412	" Fallwater.....	" ".....	"
" 15.	"	55	413	" For a name.....	" ".....	"
" 15.	"	55	414	" Rambo.....	" ".....	"
" 15.	"	55	415	" Summer Bellflower.....	" ".....	"
" 15.	"	55	416	" Holland Pippin.....	" ".....	"
" 15.	"	55	417	" Pearmain.....	" ".....	"
" 15.	"	55	418	" Black Jillflower.....	" ".....	"
" 15.	"	52	419	" Swaar.....	" ".....	"
" 15.	"	24	420	" Jersey Sweet.....	" ".....	"
" 15.	"	32	421	" Jonathan.....	" ".....	"
" 15.	"	34	422	" R. I. Greening.....	" ".....	"
" 15.	"	37	423	" Golden Russet.....	" ".....	"
" 15.	"	38	424	" Roxbury Russet.....	" ".....	"
" 15.	"	40	425	" Northern Spy.....	" ".....	"
" 15.	"	46	426	" King of Tompkins Co.....	" ".....	"
" 15.	"	48	427	" Talman Sweet.....	" ".....	"
" 15.	"	53	428	" Spitzenberg.....	" ".....	"
" 15.	"	35	429	" Baldwin.....	" ".....	"
" 15.	"	20	430	" 20-oz.....	" ".....	"
" 15.	I.	5	431	Apple any season.....	" ".....	"
" 15.	"	5	432	" ".....	" ".....	"
" 15.	"	5	433	" ".....	" ".....	"
" 15.	M.	20	434	Apple jelly.....	" ".....	"
" 15.	"	25	435	Wash. plum jelly.....	" ".....	"
" 15.	"	25	436	Purple plum jelly.....	" ".....	"
" 15.	"	19	437	White currant jelly.....	" ".....	"
" 15.	"	19	438	Red currant jelly.....	" ".....	"
" 15.	"	25	439	Huckleberry jelly.....	" ".....	"
" 15.	"	25	440	Strawberry jelly.....	" ".....	"
" 15.	D.	1	441	Col. apples grown by exhibitor.....	Charles Alford.....	"
" 15.	"	2	442	Plate summer apples.....	" ".....	"
" 15.	"	3	443	" autumn.....	" ".....	"
" 15.	"	4	444	" winter.....	" ".....	"
" 15.	"	8	445	" Maidens' Blush.....	" ".....	"
" 15.	"	10	446	" Large Yellow Bough.....	" ".....	"
" 15.	"	14	447	" Early Strawberry.....	" ".....	"
" 15.	"	17	448	" Lowell.....	" ".....	"
" 15.	"	20	449	" 20-oz.....	" ".....	"
" 15.	"	21	450	" Chenango Strawberry.....	" ".....	"
" 15.	"	22	451	" Hawley.....	" ".....	"
" 15.	"	23	452	" Dyer.....	" ".....	"
" 15.	"	24	453	" Jersey Sweet.....	" ".....	"
" 15.	"	34	454	" R. I. Greening.....	" ".....	"
" 15.	"	37	455	" Golden Russet.....	" ".....	"
" 15.	"	40	456	" Northern Spy.....	" ".....	"
" 15.	"	48	457	" Talman Sweet.....	" ".....	"
" 15.	"	55	458	" other var.....	" ".....	"
" 15.	E.	27	459	" Beurre Diel.....	" ".....	"
" 15.	G.	3	460	Greatest No. native var. grapes.....	Pt. Aux Peaux Wine Co.....	Monroe.
" 15.	"	4	461	Hartford Prolific.....	" ".....	"
" 15.	"	6	462	Delaware.....	" ".....	"
" 15.	"	8	463	Concord.....	" ".....	"
" 15.	"	10	464	Ives' Seedling.....	" ".....	"
" 15.	"	16	465	Rebecca, 5 bunches.....	" ".....	"
" 15.	"	18	466	Catawba.....	" ".....	"
" 15.	N.	2	467	Col. domestic wines.....	" ".....	"
" 15.	"	3	468	" wines, pure juice, pr'd in Mich.....	" ".....	"
" 15.	"	5	469	Concord wine.....	" ".....	"
" 15.	"	6	470	Ives' Seedling wine.....	" ".....	"
" 15.	"	7	471	Delaware wine.....	" ".....	"
" 15.	"	8	472	Isabella wine.....	" ".....	"
" 15.	"	10	473	Norton's Virginia wine.....	" ".....	"
" 15.	"	11	474	Other native wine.....	" ".....	"
" 15.	B.	2	475	Talmadge town collection.....	Charles Alford.....	Lamont.
" 15.	J.	11	476	½ pk. butternuts.....	" ".....	"
" 15.	U.	7	477	Flower Chromo.....	Henry Seymour.....	Grand Rapids.
" 15.	"	7	478	" ".....	" ".....	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 15.	U.	7	479	Flower Chromo.....	Henry Seymour.....	Grand Rapids.
" 15.	"	7	480	" ".....	" ".....	" "
" 15.	"	7	481	" ".....	" ".....	" "
" 15.	"	7	482	" ".....	" ".....	" "
" 15.	"	8	483	Fruit ".....	" ".....	" "
" 15.	K.	5	484	Dried apples.....	J. W. Barnard.....	Robinson.
" 15.	"	7	485	peaches.....	" ".....	" "
" 15.	"	9	486	cherries.....	" ".....	" "
" 15.	"	11	487	red raspberries.....	" ".....	" "
" 15.	"	11	488	black raspberries.....	" ".....	" "
" 15.	"	12	489	blackberries.....	" ".....	" "
" 15.	"	13	490	whortleberries.....	" ".....	" "
" 15.	"	15	491	currants.....	" ".....	" "
" 15.	"	21	492	corn.....	" ".....	" "
" 15.	"	24	493	tomatoes.....	" ".....	" "
" 15.	"	25	494	citron.....	" ".....	" "
" 15.	L.	5	495	Canned pears.....	" ".....	" "
" 15.	"	6	496	peaches, 4 varieties.....	" ".....	" "
" 15.	"	8	497	cherries.....	" ".....	" "
" 15.	"	10	498	strawberries.....	" ".....	" "
" 15.	"	11	499	raspberries, 4 varieties.....	" ".....	" "
" 15.	"	12	500	blackberries.....	" ".....	" "
" 15.	"	13	501	whortleberries.....	" ".....	" "
" 15.	"	15	502	gooseberries.....	" ".....	" "
" 15.	"	16	503	currants.....	" ".....	" "
" 15.	"	17	504	pie-plant.....	" ".....	" "
" 15.	"	19	505	tomatoes.....	" ".....	" "
" 15.	"	31	506	Pickled cucumbers.....	" ".....	" "
" 15.	"	32	507	beans.....	" ".....	" "
" 15.	"	34	508	Catsup.....	" ".....	" "
" 15.	Spec.	509	509	Pickled Muskmelon.....	" ".....	" "
" 15.	M.	16	510	Preserved tomatoes.....	" ".....	" "
" 15.	"	17	511	" citron.....	" ".....	" "
" 15.	"	19	512	Currant jelly.....	" ".....	" "
" 15.	"	20	513	Apple.....	" ".....	" "
" 15.	"	21	514	Siberian crab jelly.....	" ".....	" "
" 15.	"	23	515	Red raspberry jelly.....	" ".....	" "
" 15.	"	24	516	Peach jelly.....	" ".....	" "
" 15.	"	25	517	Strawberry jelly.....	" ".....	" "
" 15.	Spec.	518	518	Blackberry jam.....	" ".....	" "
" 15.	"	519	519	Red raspberry jam.....	" ".....	" "
" 15.	N.	13	520	White and red currant wine.....	" ".....	" "
" 15.	"	14	521	Blackberry wine.....	" ".....	" "
" 15.	L.	34	522	Catsup.....	Annie Lohr.....	Grand Rapids.
" 15.	"	31	523	Pickled cucumbers.....	" ".....	" "
" 15.	Spec.	524	524	balsam apple.....	" ".....	" "
" 15.	"	525	525	onions.....	" ".....	" "
" 15.	E.	15	526	Plate Flemish Beauty.....	James Craigh.....	Lamont.
" 15.	D.	3	527	" autumn apples, single variety.....	" ".....	" "
" 15.	N.	13	528	Currant wine, 3 varieties.....	Mrs. W. W. Barlow.....	Grand Rapids.
" 15.	E.	13	529	Plate Bartlett's.....	S. M. Pearsall.....	Alpine.
" 15.	D.	55	530	" Striped Bellflower.....	" ".....	" "
" 15.	J.	14	531	Peanuts.....	Chas. H. Beattie.....	Grand Rapids.
" 15.	E.	3	532	Autumn pears.....	C. W. L. Dietrich.....	" "
" 15.	"	17	533	Onondaga pears.....	" ".....	" "
" 15.	"	18	534	White Doyenne pears.....	" ".....	" "
" 15.	J.	10	535	½ pk. hickorynuts.....	" ".....	" "
" 15.	"	11	536	butternuts.....	" ".....	" "
" 15.	D.	55	537	Plate Mammoth Pippin.....	D. Woodman.....	Paw Paw.
" 15.	"	55	538	" Winter Pippin.....	" ".....	" "
" 15.	"	55	539	" Flower of Genesee.....	" ".....	" "
" 15.	"	55	540	" Fallawater.....	" ".....	" "
" 15.	"	55	541	" Rambo.....	" ".....	" "
" 15.	"	55	542	" Belmont.....	" ".....	" "
" 15.	"	55	543	" Cabashaw.....	" ".....	" "
" 15.	"	55	544	" Detroit Red.....	" ".....	" "
" 15.	"	55	545	" English Russet.....	" ".....	" "
" 15.	"	20	546	" 20-oz.....	" ".....	" "
" 15.	"	26	547	" Fall Pippin.....	" ".....	" "
" 15.	"	34	548	" R. I. Greening.....	" ".....	" "
" 15.	"	35	549	" Baldwin.....	" ".....	" "
" 15.	"	40	550	" Northern Spy.....	" ".....	" "
" 15.	"	39	551	" Wagener.....	" ".....	" "
" 15.	"	53	552	" Spitzenberg.....	" ".....	" "
" 15.	"	48	553	" Talman Sweet.....	" ".....	" "
" 15.	"	38	554	" Rox. Russet.....	" ".....	" "
" 15.	"	31	555	" Autumn Swaar.....	" ".....	" "
" 15.	"	8	556	" Maiden's Blush.....	" ".....	" "
" 15.	"	46	557	" King of Tompkins Co.....	" ".....	" "

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 15.	D.	32	558	Plate Jonathan.....	D. Woodman.....	Paw Paw
" 15.	"	24	559	" Jersey Sweet.....	" ".....	"
" 15.	"	47	560	" Yellow Bellflower.....	" ".....	"
" 15.	I.	3	561	" Seedling Rubicon.....	" ".....	"
" 15.	G.	1	562	Col. nat. grapes gr'n by exhibitor.....	P. C. Davis.....	Kalamazoo.
" 15.	M.	25	563	Cranberry jelly.....	Mrs. D. Schermerhorn.....	Grand Rapids.
" 15.	G.	19	564	Rogers' No. 4, Wilder.....	W. O. Houghtaling.....	"
" 15.	"	19	565	" " 19, Merrimack.....	" ".....	"
" 15.	D.	1	566	Collection of apples.....	H. Dale Adams.....	Kalamazoo.
" 15.	"	2	567	Plate summer apples.....	" ".....	"
" 15.	"	8	568	" Maiden's Blush.....	" ".....	"
" 15.	"	17	569	" Lowell.....	" ".....	"
" 15.	"	18	570	" Porter.....	" ".....	"
" 15.	"	20	571	" 20-oz.....	" ".....	"
" 15.	"	22	572	" Hawley.....	" ".....	"
" 15.	"	26	573	" Fall Pippin.....	" ".....	"
" 15.	"	30	574	" Summer Pearmain.....	" ".....	"
" 15.	"	31	575	" Autumn Swaar.....	" ".....	"
" 15.	"	32	576	" Jonathan.....	" ".....	"
" 15.	"	33	577	" Peck's Pleasant.....	" ".....	"
" 15.	"	34	578	" R. I. Greening.....	" ".....	"
" 15.	"	35	579	" Baldwin.....	" ".....	"
" 15.	"	36	580	" Red Canada.....	" ".....	"
" 15.	"	37	581	" Golden Russet.....	" ".....	"
" 15.	"	39	582	" Wagener.....	" ".....	"
" 15.	"	40	583	" Northern Spy.....	" ".....	"
" 15.	"	41	584	" Belmont.....	" ".....	"
" 15.	"	42	585	" Fameuse.....	" ".....	"
" 15.	"	44	586	" Westfield Seek-no-further.....	" ".....	"
" 15.	"	46	587	" King of Tompkins Co.....	" ".....	"
" 15.	"	48	588	" Talman Sweet.....	" ".....	"
" 15.	"	49	589	" Ladies' Sweet.....	" ".....	"
" 15.	"	52	590	" Swaar.....	" ".....	"
" 15.	"	54	591	" Melon.....	" ".....	"
" 15.	"	55	592	" Other varieties.....	" ".....	"
" 15.	E.	3	593	" Autumn pears.....	" ".....	"
" 15.	"	4	594	" Winter.....	" ".....	"
" 15.	"	13	595	" Bartlett.....	" ".....	"
" 15.	"	14	596	" Buffam.....	" ".....	"
" 15.	"	15	597	" Flemish Beauty.....	" ".....	"
" 15.	"	21	598	" Sheldon.....	" ".....	"
" 15.	I.	2	599	Seedling autumn apples (5 spec.).....	" ".....	"
" 15.	L.	5	600	Canned pears.....	" ".....	"
" 15.	"	8	601	" cherries.....	" ".....	"
" 16.	"	----	602	<i>Vick's special:</i> Everlasting flowers and grasses.....	Mrs. W. S. Parsons.....	Grand Rapids.
" 16.	"	----	603	" ".....	" ".....	"
" 16.	B.	2	604	Ganges township collection.....	A. H. Perrotie.....	Ganges.
" 16.	H.	1	605	Collection of plums.....	E. J. Shirts.....	Shelby.
" 16.	"	3	606	Lombard.....	" ".....	"
" 16.	"	5	607	Yellow Egg.....	" ".....	"
" 16.	"	7	608	Bavay's Green Gage.....	" ".....	"
" 16.	"	9	609	Sheldon.....	" ".....	"
" 16.	"	11	610	Green Gage.....	" ".....	"
" 16.	"	12	611	Hull's Superb.....	" ".....	"
" 16.	"	14	612	Jefferson.....	" ".....	"
" 16.	"	17	613	Blue Damsel.....	" ".....	"
" 16.	B.	2	614	Monroe township collection.....	Reynolds, Lewis & Co.....	Monroe.
" 16.	C.	1	615	Collection summer apples.....	I. E. Ilgenfritz & Co.....	"
" 16.	"	2	616	" autumn.....	" ".....	"
" 16.	"	3	617	" winter.....	" ".....	"
" 16.	"	5	618	" autumn pears.....	" ".....	"
" 16.	"	6	619	" winter.....	" ".....	"
" 16.	D.	1	620	" apples gr'n by exhibitor.....	" ".....	"
" 16.	"	2	621	Plate summer apples.....	" ".....	"
" 16.	"	3	622	" autumn.....	" ".....	"
" 16.	"	4	623	" winter.....	" ".....	"
" 16.	"	5	624	" Early Harvest.....	" ".....	"
" 16.	"	6	625	" Red Astrachan.....	" ".....	"
" 16.	"	7	626	" Duchesse Oldenberg.....	" ".....	"
" 16.	"	8	627	" Maiden's Blush.....	" ".....	"
" 16.	"	14	628	" Early Strawberry.....	" ".....	"
" 16.	"	15	629	" Early Joe.....	" ".....	"
" 16.	"	16	630	" Summer Rose.....	" ".....	"
" 16.	"	17	631	" Lowell.....	" ".....	"
" 16.	"	18	632	" Porter.....	" ".....	"
" 16.	"	19	633	" Keswick's Codlin.....	" ".....	"
" 16.	"	20	634	" 20-oz.....	" ".....	"
" 16.	"	22	635	" Hawley.....	" ".....	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	D.	26	636	Plate Fall Pippin.....	I. E. Ilgenfritz & Co.....	Monroe.
" 16.	"	27	637	" Ohio Nonparel.....	" " " ".....	"
" 16.	"	32	638	" Jonathan.....	" " " ".....	"
" 16.	"	33	639	" Peck's Pleasant.....	" " " ".....	"
" 16.	"	34	640	" R. I. Greening.....	" " " ".....	"
" 16.	"	35	641	" Baldwin.....	" " " ".....	"
" 16.	"	36	642	" Red Canada.....	" " " ".....	"
" 16.	"	37	643	" Golden Russet.....	" " " ".....	"
" 16.	"	38	644	" Rox. Russet.....	" " " ".....	"
" 16.	"	39	645	" Wagener.....	" " " ".....	"
" 16.	"	40	646	" Northern Spy.....	" " " ".....	"
" 16.	"	41	647	" Belmont.....	" " " ".....	"
" 16.	"	42	648	" Fameuse.....	" " " ".....	"
" 16.	"	44	649	" Westfield Seek-no-further.....	" " " ".....	"
" 16.	"	45	650	" Hubbardston Nonsuch.....	" " " ".....	"
" 16.	"	46	651	" King of Tompkins Co.....	" " " ".....	"
" 16.	"	47	652	" Yellow Bellflower.....	" " " ".....	"
" 16.	"	48	653	" Talman Sweet.....	" " " ".....	"
" 16.	"	49	654	" Ladies' Sweet.....	" " " ".....	"
" 16.	"	51	655	" Grimes' Golden.....	" " " ".....	"
" 16.	"	52	656	" Swaar.....	" " " ".....	"
" 16.	"	53	657	" Esopus Spitzenberg.....	" " " ".....	"
" 16.	"	54	658	" Melon.....	" " " ".....	"
" 16.	E.	1	659	Col. pears grown by exhibitor.....	" " " ".....	"
" 16.	"	2	660	Plate summer pears.....	" " " ".....	"
" 16.	"	3	661	" autumn pears.....	" " " ".....	"
" 16.	"	4	662	" winter pears.....	" " " ".....	"
" 16.	"	13	663	" Bartlett.....	" " " ".....	"
" 16.	"	14	664	" Buffam.....	" " " ".....	"
" 16.	"	15	665	" Flemish Beauty.....	" " " ".....	"
" 16.	"	16	666	" Seckel.....	" " " ".....	"
" 16.	"	17	667	" Onondaga.....	" " " ".....	"
" 16.	"	18	668	" White Doyenne.....	" " " ".....	"
" 16.	"	19	669	" Beurre D'Anjou.....	" " " ".....	"
" 16.	"	21	670	" Sheldon.....	" " " ".....	"
" 16.	"	24	671	" Beurre Bose.....	" " " ".....	"
" 16.	"	26	672	" Lawrence.....	" " " ".....	"
" 16.	"	27	673	" Beurre Diel.....	" " " ".....	"
" 16.	"	28	674	" Winter Nelis.....	" " " ".....	"
" 16.	J.	2	675	" Quinces.....	" " " ".....	"
" 16.	N.	16	676	Elderberry wine.....	Pt. Aux Peaux Wine Co.....	"
" 16.	D.	55	677	Plate apples.....	John Roost.....	Holland.
" 16.	"	55	678	" " " ".....	" " " ".....	"
" 16.	F.	12	679	" Crawford's Late.....	" " " ".....	"
" 16.	E.	15	680	" Flemish Beauty.....	" " " ".....	"
" 16.	B.	2	681	Town collection.....	Peninsular Farmers' Club.....	Old Mission.
" 16.	"	1	682	County collection.....	Judge J. G. Ramsdell.....	Traverse City.
" 16.	G.	8	683	Plate Concord grapes.....	Harlow Bacon.....	Holland.
" 16.	"	6	684	" Delaware.....	" " " ".....	"
" 16.	"	18	685	" Northern Muscadine.....	" " " ".....	"
" 16.	"	11	686	" Diana.....	" " " ".....	"
" 16.	L.	6	687	" Crawford peaches.....	Mrs. Allen Engle.....	Grand Rapids.
" 16.	"	15	688	Canned gooseberries.....	" " " ".....	"
" 16.	D.	4	689	Winter apples.....	Wm. N. Rowe.....	Walker.
" 16.	Q.	11	690	Seedling Verbena.....	D. L. Arnold.....	Grand Rapids.
" 16.	"	24	691	Lemon Verbena.....	" " " ".....	"
" 16.	N.	22	692	Cider vinegar.....	" " " ".....	"
" 16.	U.	1	693	Col. fruit and flower plates.....	Mrs. L. E. Patten.....	"
" 16.	"	10	694	Fruit pieces, var'ties cor'ctly named.....	L. E. Patten.....	"
" 16.	"	10	695	" " " ".....	Mrs. L. E. Patten.....	"
" 16.	"	7	696	Flower chromo.....	L. E. Patten.....	"
" 16.	"	8	697	Fruit.....	Mrs. L. E. Patten.....	"
" 16.	C.	1	698	Col. sum. apples recom'd by Soc'y.....	N. & C. Chilson.....	Battle Creek.
" 16.	"	2	699	" aut'n " " " ".....	" " " ".....	"
" 16.	"	3	700	" win'r " " " ".....	" " " ".....	"
" 16.	B.	4	701	Individual collection.....	" " " ".....	"
" 16.	D.	8	702	Plate Maiden's Blush.....	" " " ".....	"
" 16.	"	21	703	" Chenaugo Strawberry.....	" " " ".....	"
" 16.	"	39	704	" Wagener.....	" " " ".....	"
" 16.	"	20	705	" 20-oz.....	" " " ".....	"
" 16.	"	30	706	" Summer Pearmain.....	" " " ".....	"
" 16.	"	31	707	" Autumn Swaar.....	" " " ".....	"
" 16.	"	40	708	" Northern Spy.....	" " " ".....	"
" 16.	"	34	709	" R. I. Greening.....	" " " ".....	"
" 16.	"	48	710	" Talman Sweet.....	" " " ".....	"
" 16.	"	44	711	" Westfield Seek-no-further.....	" " " ".....	"
" 16.	"	55	712	" Autumn Strawberry.....	" " " ".....	"
" 16.	"	55	713	" Winter Pearmain.....	" " " ".....	"
" 16.	G.	8	714	" Concord grapes.....	" " " ".....	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	G.	6	715	Plate Delaware grapes.	N. & C. Chilson.	Battle Creek.
" 16.	"	18	716	" White Sweetwater grapes.	"	"
" 16.	D.	4	717	" winter apples.	Norman Cumming.	Englishville.
" 16.	"	34	718	" R. I. Greening.	"	"
" 16.	"	35	719	" Baldwin.	"	"
" 16.	"	36	720	" Red Canada.	"	"
" 16.	"	37	721	" Golden Russet.	"	"
" 16.	"	38	722	" Rox.	"	"
" 16.	"	39	723	" Wagener.	"	"
" 16.	"	40	724	" Northern Spy.	"	"
" 16.	"	42	725	" Fameuse.	"	"
" 16.	"	55	726	" other variety.	"	"
" 16.	"	55	727	"	"	"
" 16.	J.	12	728	½ pk. black walnuts.	"	"
" 16.	"	5	729	Collection of native nuts.	H. H. Richards.	Grand Rapids.
" 16.	"	7	730	½ pk. hazlenuts.	"	"
" 16.	"	10	731	" hickorynuts.	"	"
" 16.	"	11	732	" butternuts.	"	"
" 16.	"	12	733	" walnuts.	"	"
" 16.	D.	35	734	Plate Baldwin apples.	Wm. H. Stewart.	"
" 16.	"	38	735	" Rox. Russet.	"	"
" 16.	"	37	736	" Golden Russet.	"	"
" 16.	E.	15	737	" Flemish Beauty.	"	"
" 16.	"	13	738	" Bartlett.	"	"
" 16.	T.	6	739	Floral design.	Wm. N. Rowe.	Walker.
" 16.	C.	3	740	Col. winter apples recom'd by Soc'y	F. M. Benham.	Olivet.
" 16.	"	11	741	" grapes for market.	"	"
" 16.	D.	3	742	Plate autumn apples.	"	"
" 16.	"	4	743	" winter.	"	"
" 16.	"	14	744	" Early Strawberry.	"	"
" 16.	"	26	745	" Fall Pippin.	"	"
" 16.	"	30	746	" Summer Pearmain.	"	"
" 16.	"	54	747	" Melon.	"	"
" 16.	"	57	748	" Siberian crab.	"	"
" 16.	"	58	749	" Transcendent crab.	"	"
" 16.	"	59	750	" Large Red.	"	"
" 16.	"	60	751	" Montreal Beauty.	"	"
" 16.	"	61	752	" Hyslop.	"	"
" 16.	E.	3	753	" autumn pears.	"	"
" 16.	I.	10	754	" Siberian crab.	"	"
" 16.	R.	23	755	Aster, single variety.	"	"
" 16.	S.	9	756	Gladiolus.	"	"
" 16.	G.	13	757	Clinton grape.	J. M. Dean.	"
" 16.	"	2	758	Collection of foreign grapes.	A. Sigler.	Adrian.
" 16.	"	20	759	Light colored.	"	"
" 16.	"	21	760	Dark.	"	"
" 16.	"	24	761	Muscat of Alexandria.	"	"
" 16.	"	22	762	Black Hamburg.	"	"
" 16.	"	9	763	Iona.	"	"
" 16.	J.	2	764	Quinces.	"	"
" 16.	F.	9	765	Barnard.	E. J. Shirte.	Shelby.
" 16.	J.	Spec.	766	Blackberries.	F. M. Benham.	Olivet.
" 16.	"	"	767	Osage seed.	"	"
" 16.	"	"	768	<i>Vick's special list over 20:</i>	"	"
" 16.	"	"	769	Collection of cut flowers.	Mrs. E. Platt.	Jonesville.
" 16.	"	"	770	" " Asters.	"	"
" 16.	"	"	771	" " Dianthus.	"	"
" 16.	"	"	772	" " Pansies.	"	"
" 16.	"	"	773	" " Gladiolus.	"	"
" 16.	"	"	774	Col. ever'ing flowers and grasses.	"	"
" 16.	B.	1	775	County collection.	John Gilbert.	Ovid.
" 16.	I.	2	776	Town collection, Ovid.	"	"
" 16.	N.	21	777	Boiled cider.	Geo. W. Ewing.	Corinth.
" 16.	U.	Spec.	778	Cider apple sauce.	"	"
" 16.	J.	2	779	Quinces.	"	"
" 16.	D.	55	780	Plate Spice Sweet.	F. M. Benham.	Olivet.
" 16.	"	24	781	" Jersey.	"	"
" 16.	L.	13	782	Canned whortleberries.	L. C. Lincoln.	Greenville.
" 16.	"	16	783	" currants.	"	"
" 16.	M.	12	784	Preserved.	"	"
" 16.	"	13	785	" gooseberries.	"	"
" 16.	"	16	786	" tomatoes.	"	"
" 16.	"	10	787	" whortleberries.	"	"
" 16.	"	19	788	Jelly, currant.	"	"
" 16.	"	23	789	" raspberry.	"	"
" 16.	"	25	790	" Transcendent crab.	"	"
" 16.	"	25	791	" gooseberry.	"	"
" 16.	R.	8	792	Col. phlox, 10 or more varieties.	"	"
" 16.	"	22	793	Phlox Drummondii, single variety.	"	"

STATE POMOLOGICAL SOCIETY.

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	K.	5	793	Dried apples	L. C. Lincoln	Greenville.
" 16.	"	9	794	cherries	" "	"
" 16.	"	10	795	strawberries	" "	"
" 16.	"	15	796	currants	" "	"
" 16.	"	16	797	gooseberries	" "	"
" 16.	"	19	798	pumpkin	" "	"
" 16.	"	20	799	peas	" "	"
" 16.	"	21	800	corn	" "	"
" 16.	"	23	801	crab apples	" "	"
" 16.	"	24	802	tomatoes	" "	"
" 16.	"	26	803	pie-plant	" "	"
" 16.	"	11	804	black raspberries	" "	"
" 16.	"			<i>Vick's special list over 20:</i>		
" 16.	"	4	805	Col. Phlox Drummondii	" "	"
" 16.	C.	5	807	Col. domestic dried fruit, 1 family	C. Engle	Paw Paw.
" 16.	E.	1	808	aut. pears recom'd by Soc'y	" "	"
" 16.	C.	6	809	pears grown by exhibitor	" "	"
" 16.	E.	3	810	winter pears grown by exhib'r	" "	"
" 16.	"	4	811	Plate autumn pears	" "	"
" 16.	"	13	812	winter pears	" "	"
" 16.	"	14	813	Bartlett's	" "	"
" 16.	"	15	814	Buffam	" "	"
" 16.	"	16	815	Flemish Beauty	" "	"
" 16.	"	18	816	Seckel	" "	"
" 16.	"	18	816	White Doyenne	" "	"
" 16.	"	26	817	Lawrence	" "	"
" 16.	"	28	818	winter Nelis	" "	"
" 16.	"	29	819	Duchess D'Angouleme	" "	"
" 16.	C.	11	820	Col. grapes, nat., recom'd by Soc'y	" "	"
" 16.	G.	1	821	" grown by exhibitor	" "	"
" 16.	"	4	822	Plate Hartford Prolific	" "	"
" 16.	"	6	823	Delaware	" "	"
" 16.	"	7	824	Israella	" "	"
" 16.	"	8	825	Concord	" "	"
" 16.	"	9	826	Iona	" "	"
" 16.	"	10	827	Ives' Seedling	" "	"
" 16.	"	11	828	Diana	" "	"
" 16.	"	16	829	Rebecca	" "	"
" 16.	"	19	830	Salem	" "	"
" 16.	"	18	831	Martha	" "	"
" 16.	"	18	832	Catawba	" "	"
" 16.	J.	2	833	Quinces	" "	"
" 16.	I.	6	834	Seedling peaches	" "	"
" 16.	R.	26	835	Giant Coxcomb, single	C. S. Randall	Lamont.
" 16.	"	11	836	Collection Coxcomb	" "	"
" 16.	"	22	837	Phlox Drummondii, single	" "	"
" 16.	"	25	838	Double Zenia, single	" "	"
" 16.	Q.	17	839	Single Petunia	" "	"
" 16.	"	12	840	Seedling Verbena	" "	"
" 16.	B.	1	841	County collection	South Haven Pom. Soc'y	South Haven.
" 16.	"	3	842	Society	" "	"
" 16.	M.	20	843	Apple jelly	J. T. Weeks	Napoleon.
" 16.	S.	5	844	Collection Gladiolus	Geo. Taylor	Kalamazoo.
" 16.	"	9	845	Single Gladiolus	" "	"
" 16.	O.	8	846	Grape vines	F. F. Kleeman	Saugatuck.
" 16.	G.	6	847	Plate Delaware	" "	"
" 16.	"	9	848	Iona	" "	"
" 16.	"	7	849	Israella	" "	"
" 16.	"	18	850	Isabella	" "	"
" 16.	"	18	851	Clinton	" "	"
" 16.	"	18	852	Muscattelle	" "	"
" 16.	"	21	853	dark colored foreign grape	" "	"
" 16.	"	19	854	Salem,—Rogers 22	C. Engle	Paw Paw.
" 16.	D.	38	855	Rox. Russets	S. M. Pearsall	Alpine.
" 16.	"			<i>Vick's special list over 20:</i>		
" 16.	"		856	Col. cut flowers	Mrs. Geo. Smith	Walker.
" 16.	"		857	Asters	" "	"
" 16.	"		858	Dianthus	" "	"
" 16.	"		859	Pansies	" "	"
" 16.	"		860	Stocks	" "	"
" 16.	"		861	Gladiolus	" "	"
" 16.	R.	1	862	Col. flowers, hardy and half hardy	" "	"
" 16.	"	2	863	Pansies, 5 varieties or more	" "	"
" 16.	"	4	864	Petunias	" "	"
" 16.	"	6	865	Pinks	" "	"
" 16.	"	7	866	annuals, 20 or more	" "	"
" 16.	"	8	867	Phlox Drummondii	" "	"
" 16.	"	9	868	Asters	" "	"
" 16.	"	10	869	ten weeks' stock	" "	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	R.	11	870	Collection Coxcombs.....	Mrs. Geo. Smith.....	Walker.
" 16.	"	12	871	" Mignonette.....	" ".....	"
" 16.	"	17	872	Pansy, single variety.....	" ".....	"
" 16.	"	18	873	Antirrhinum.....	" ".....	"
" 16.	"	21	874	Pink, single variety.....	" ".....	"
" 16.	"	28	875	Althca, ".....	" ".....	"
" 16.	S.	6	876	Collection bulbous plants.....	" ".....	"
" 16.	D.	34	877	Plate R. I. Greening.....	Joseph Flanders.....	Galesburg.
" 16.	"	38	878	" Rox. Russet.....	" ".....	"
" 16.	"	37	879	" Golden Russet.....	" ".....	"
" 16.	"	47	880	" Bellflower.....	" ".....	"
" 16.	"	40	881	" Northern Spy.....	" ".....	"
" 16.	"	55	882	" Newtown Pippin.....	" ".....	"
" 16.	"	55	883	" Flushing Spitzenberg.....	" ".....	"
" 16.	"	55	884	" Neverfail.....	" ".....	"
" 16.	"	55	885	" Rambo.....	" ".....	"
" 16.	"	55	886	" 20-oz. Pippin.....	" ".....	"
" 16.	"	55	887	" Fallwater.....	" ".....	"
" 16.	"	55	888	" Holland Pippin.....	" ".....	"
" 16.	"	55	889	" Blue Pearmain.....	" ".....	"
" 16.	"	55	890	" victuals and drink.....	" ".....	"
" 16.	"	55	891	" beef steak.....	" ".....	"
" 16.	"	55	892	" Colvert.....	" ".....	"
" 16.	"	55	893	" Sweet Russet.....	" ".....	"
" 16.	"	55	894	" American Pippin.....	" ".....	"
" 16.	"	52	895	" Swaar.....	" ".....	"
" 16.	"	39	896	" Wagener.....	" ".....	"
" 16.	"	35	897	" Baldwin.....	" ".....	"
" 16.	"	46	898	" King Tompkins County.....	" ".....	"
" 16.	"	54	899	" Melon.....	" ".....	"
" 16.	"	32	900	" Jonathan.....	" ".....	"
" 16.	"	44	901	" Seek-no-further.....	" ".....	"
" 16.	"	24	902	" Jersey Sweet.....	" ".....	"
" 16.	"	26	903	" Fall Pippin.....	" ".....	"
" 16.	"	17	904	" Lowell.....	" ".....	"
" 16.	"	48	905	" Talman Sweet.....	" ".....	"
" 16.	"	33	906	" Peck's Pleasant.....	" ".....	"
" 16.	"	18	907	" Porter.....	" ".....	"
" 16.	"	8	908	" Maiden's Blush.....	" ".....	"
" 16.	"	39	909	" Wagener.....	James Bush.....	Bostwick Lake.
" 16.	"	39	910	" ".....	Geo. Steele.....	"
" 16.	"	40	911	" Northern Spy.....	" ".....	"
" 16.	"	33	912	" Peck's Pleasant.....	" ".....	"
" 16.	"	48	913	" Talman Sweet.....	" ".....	"
" 16.	"	55	914	" Fall Orange.....	" ".....	"
" 16.	"	55	915	" Munson Sweet.....	" ".....	"
" 16.	"	42	916	" Fameuse.....	" ".....	"
" 16.	"	45	917	" Hubbardston Nonsuch.....	" ".....	"
" 16.	F.	28	918	" Peaches.....	D. L. Tiler & Son.....	Manistee.
" 16.	"	28	919	" ".....	" ".....	"
" 16.	E.	18	920	" Bartlett.....	" ".....	"
" 16.	"	15	921	" Flemish Beauty.....	" ".....	"
" 16.	H.	2	922	" Washington plum.....	" ".....	"
" 16.	"	17	923	" Unknown.....	" ".....	"
" 16.	"	17	924	" ".....	" ".....	"
" 16.	"	17	925	" Purple Egg.....	" ".....	"
" 16.	"	3	926	" Lombard.....	" ".....	"
" 16.	N.	14	927	" Blackberry wine.....	" ".....	"
" 16.	F.	28	928	" Mountain Rose.....	S. W. Fowler.....	"
" 16.	"	28	929	" Plate peaches.....	" ".....	"
" 16.	E.	18	930	" Bartlett.....	" ".....	"
" 16.	"	15	931	" Flemish Beauty.....	" ".....	"
" 16.	H.	2	932	" Washington plum.....	" ".....	"
" 16.	"	3	933	" Lombard.....	" ".....	"
" 16.	"	17	934	" Unknown.....	" ".....	"
" 16.	"	17	935	" ".....	" ".....	"
" 16.	"	17	936	" Purple Egg.....	" ".....	"
" 16.	N.	14	937	" Blackberry wine.....	" ".....	"
" 16.	P.	3	938	" Collection of Abutilons.....	W. R. Hibbard.....	Jackson.
" 16.	"	4	939	" Abutilon, single variety.....	" ".....	"
" 16.	"	5	940	" Collection Geraniums.....	" ".....	"
" 16.	"	7	941	" Zonale.....	" ".....	"
" 16.	"	9	942	" Double.....	" ".....	"
" 16.	"	12	943	" Col. Gold, Bronze, and Silver Ger.....	" ".....	"
" 16.	"	17	944	" Collection Fuschias.....	" ".....	"
" 16.	"	18	945	" Single variety Fuschias.....	" ".....	"
" 16.	"	19	946	" Double.....	" ".....	"
" 16.	"	22	947	" Oleander.....	" ".....	"
" 16.	"	23	948	" Calla.....	" ".....	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	P.	24	949	Hoya.....	W. R. Hibbard	Jackson.
" 16.	"	25	950	Collection Begonias.....	" "	" "
" 16.	"	26	951	Flowering Begonias, single var'y.....	" "	" "
" 16.	"	28	952	Col. winter blooming plants.....	" "	" "
" 16.	"	29	953	" ornamental foliage plants.....	" "	" "
" 16.	"	30	954	Single var. ornamental foliage pl'ts.....	" "	" "
" 16.	"	35	955	Collection Ferns.....	" "	" "
" 16.	"	39	956	Orange tree.....	" "	" "
" 16.	Q.	4	957	Col. Lantanas.....	" "	" "
" 16.	"	7	958	" foliage plants for bedding.....	" "	" "
" 16.	"	8	959	" Coleus.....	" "	" "
" 16.	"	15	960	Lantana.....	" "	" "
" 16.	"	23	961	Salvia.....	" "	" "
" 16.	T.	3	962	Floral mound or pyramid.....	" "	" "
" 16.	"	7	963	Pair round bouquets.....	" "	" "
" 16.	"	8	964	" flat.....	" "	" "
" 16.	F.	12	965	Basket everlasting flowers.....	Mrs. Wm. Rowe	Walker.
" 16.	"	"	"	<i>Vick's special list under 20:</i>	" "	" "
" 16.	"	"	966	Basket everlasting flowers.....	Miss Susie Rowe	" "
" 16.	"	"	967	Col. cut flowers.....	" "	" "
" 16.	"	"	968	" Dianthus.....	" "	" "
" 16.	"	"	969	" cut flowers.....	Amos Rathbun	Grand Rapids.
" 16.	"	"	970	" Phlox Drummondii.....	" "	" "
" 16.	"	"	971	" Asters.....	" "	" "
" 16.	"	"	972	" Balsams.....	" "	" "
" 16.	"	"	973	" Dianthus.....	" "	" "
" 16.	"	"	974	" Pansies.....	" "	" "
" 16.	"	"	975	" Stocks.....	" "	" "
" 16.	"	"	976	" Gladiolus.....	" "	" "
" 16.	"	"	977	" ever'g flowers and grasses.....	" "	" "
" 16.	"	"	"	<i>Vick's special list over 20:</i>	" "	" "
" 16.	"	"	978	Col. cut flowers.....	Mrs. G. B. Rathbun	" "
" 16.	"	"	979	" Phlox Drummondii.....	" "	" "
" 16.	"	"	980	" Asters.....	" "	" "
" 16.	"	"	981	" Balsams.....	" "	" "
" 16.	"	"	982	" Dianthus.....	" "	" "
" 16.	"	"	983	" Pansies.....	" "	" "
" 16.	"	"	984	" Stocks.....	" "	" "
" 16.	"	"	985	" Gladiolus.....	" "	" "
" 16.	"	"	986	" ever'g flowers and grasses.....	" "	" "
" 16.	P.	23	987	Calla.....	John Suttle	" "
" 16.	L.	8	988	Canned cherries.....	Mrs. W. N. Cook	" "
" 16.	"	10	989	" raspberries.....	" "	" "
" 16.	"	5	990	" pears.....	" "	" "
" 16.	"	6	991	" peaches.....	" "	" "
" 16.	G.	23	992	Pickled peas.....	L. C. Lincoln	Greenville.
" 16.	"	82	993	" beans.....	" "	" "
" 16.	M.	25	994	Strawberry jelly.....	" "	" "
" 16.	H.	1	995	Collection plums.....	James Snow	Muskegon.
" 16.	E.	19	996	Plate Beurre D'Anjou pears.....	" "	" "
" 16.	"	29	997	" Duchesse D'Angouleme.....	" "	" "
" 16.	"	14	998	" Buffam.....	" "	" "
" 16.	"	15	999	" Flemish Beauty.....	" "	" "
" 16.	"	29	1000	" Louise Bonne.....	" "	" "
" 16.	H.	17	1001	" Beecker's Gage plums.....	" "	" "
" 16.	"	14	1002	" Jefferson.....	" "	" "
" 16.	"	6	1003	" Coe's Golden Drop.....	" "	" "
" 16.	"	4	1004	" Duane's Purple.....	" "	" "
" 16.	"	15	1005	" Imperial Gage.....	" "	" "
" 16.	D.	55	1006	" Green Sweeting apples.....	N. & C. Chilson	Battle Creek.
" 16.	"	55	1007	" Limber Twig.....	" "	" "
" 16.	"	55	1008	" Newtown Pippin.....	" "	" "
" 16.	"	55	1009	" Cooper's Market.....	" "	" "
" 16.	"	12	1010	" Carolina Red June.....	" "	" "
" 16.	"	52	1011	" Swaar.....	" "	" "
" 16.	"	28	1012	" Hassell Sweet.....	" "	" "
" 16.	"	15	1013	" Early Joe.....	" "	" "
" 16.	E.	29	1014	" L. B. De Jersey.....	C. Engle	Paw Paw.
" 16.	"	29	1015	" Duchesse D'Angouleme.....	" "	" "
" 16.	"	29	1016	" Church.....	" "	" "
" 16.	"	23	1017	" Fondante De Auternou.....	" "	" "
" 16.	D.	8	1018	" Maiden's Blush.....	Wm. N. Rowe	Walker.
" 16.	J.	2	1019	" Quinces.....	J. Flanders	Galesburg.
" 16.	D.	4	1020	" winter apples.....	Geo. Steele	Bostwick Lake.
" 16.	E.	29	1021	" L. B. De Jersey.....	Wm. N. Rowe	Walker.
" 16.	K. Spec.	1022	" dried ground-cherries.....	L. C. Lincoln	Greenville.	
" 16.	D.	14	1023	" Early Strawberry.....	J. Flanders	Galesburg.
" 16.	"	55	1024	" Pomme Gris.....	" "	" "
" 16.	P.	44	1025	Bouvardia.....	W. R. Hibbard	Jackson.

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	P.	45	1026	Collection parlor plants	W. R. Hibbard	Jackson.
" 16.	Q.	24	1027	Lemon Verbena	" "	"
" 16.	"	26	1028	Argemum	" "	"
" 16.	S.	4	1029	Collection Tuberoses	" "	"
" 16.	E.	13	1030	Plate Bartlett pears	Reynolds, Lewis & Co.	Monroe.
" 16.	"	15	1031	" Flemish Beauty	" "	"
" 16.	"	29	1032	" Belle Lucrative	" "	"
" 16.	"	4	1033	" Autumn pears	" "	"
" 16.	"	21	1034	" Sheldon	" "	"
" 16.	"	29	1035	" Beurre Claragean	" "	"
" 16.	"	17	1036	" Onondaga	" "	"
" 16.	"	19	1037	" Beurre D'Anjou	" "	"
" 16.	D.	17	1038	" Lowell apples	" "	"
" 16.	"	18	1039	" Porter	" "	"
" 16.	"	20	1040	" 20-oz.	" "	"
" 16.	"	22	1041	" Hawley	" "	"
" 16.	"	26	1042	" Fall Pippin	" "	"
" 16.	"	32	1043	" Jonathan	" "	"
" 16.	"	33	1044	" Peck's Pleasant	" "	"
" 16.	"	34	1045	" R. I. Greening	" "	"
" 16.	"	35	1046	" Baldwin	" "	"
" 16.	"	36	1047	" Red Canada	" "	"
" 16.	"	39	1048	" Wagener	" "	"
" 16.	"	40	1049	" Northern Spy	" "	"
" 16.	"	44	1050	" Westfield Sock no further	" "	"
" 16.	"	46	1051	" King of Tompkins County	" "	"
" 16.	"	48	1052	" Talman Sweet	" "	"
" 16.	"	52	1053	" Swaar	" "	"
" 16.	"	53	1054	" Spitzenberg	" "	"
" 16.	"	55	1055	" Russet	" "	"
" 16.	"	55	1056	" Green White Pippin	" "	"
" 16.	"	55	1057	" William Russet	" "	"
" 16.	"	55	1058	" Hawthorne	" "	"
" 16.	"	4	1059	" winter apples	Josiah Mastin	Oakfield.
" 16.	"	20	1060	" 20-oz.	J. Flanders	Galesburg.
" 16.	B.	1	1061	Wayne County collection	J. W. Humphreys	Plymouth.
" 16.	J.	2	1062	Quinces	Chas. Alford	Lamont.
" 16.	D.	2	1063	Plate summer apples	John Gilbert	Ovid.
" 16.	"	3	1064	" autumn	" "	"
" 16.	"	4	1065	" winter	" "	"
" 16.	"	6	1066	" Red Astrachan	" "	"
" 16.	"	8	1067	" Maiden's Blush	" "	"
" 16.	"	9	1068	" Primate	" "	"
" 16.	"	10	1069	" Sweet Bough	" "	"
" 16.	"	15	1070	" Early Joe	" "	"
" 16.	"	17	1071	" Lowell	" "	"
" 16.	"	18	1072	" Porter	" "	"
" 16.	"	20	1073	" 20-oz.	" "	"
" 16.	"	29	1074	" Garden Royale	" "	"
" 16.	"	30	1075	" Summer Pearmain	" "	"
" 16.	"	33	1076	" Peck's Pleasant	" "	"
" 16.	"	36	1077	" Red Canada	" "	"
" 16.	"	39	1078	" Wagener	" "	"
" 16.	"	40	1079	" Northern Spy	" "	"
" 16.	"	41	1080	" Belmont	" "	"
" 16.	"	42	1081	" Fameuse	" "	"
" 16.	"	55	1082	" Colvert	" "	"
" 16.	E.	14	1083	" Buffam pears	" "	"
" 16.	"	15	1084	" Flemish Beauty	" "	"
" 16.	K.	4	1085	Col. domestic dried fruits	" "	"
" 16.	L.	3	1086	" " pickled and canned fruits	" "	"
" 16.	"	5	1087	" Canned pears	" "	"
" 16.	M.	21	1088	Siberian Crab jelly	" "	"
" 16.	D.	6	1089	Plate Red Astrachan apples	South Haven Fom. Soc'y	South Haven.
" 16.	"	8	1090	" Maiden's Blush	" "	"
" 16.	"	10	1091	" Large Yellow Bough	" "	"
" 16.	"	17	1092	" Lowell	" "	"
" 16.	"	20	1093	" 20-oz.	" "	"
" 16.	"	21	1094	" Chenango Strawberry	" "	"
" 16.	"	24	1095	" Jersey Sweet	" "	"
" 16.	"	26	1096	" Fall Pippin	" "	"
" 16.	"	32	1097	" Jonathan	" "	"
" 16.	"	34	1098	" R. I. Greening	" "	"
" 16.	"	35	1099	" Baldwin	" "	"
" 16.	"	37	1100	" Golden Russet	" "	"
" 16.	"	38	1101	" Rox. Russet	" "	"
" 16.	"	39	1102	" Wagener	" "	"
" 16.	"	40	1103	" Northern Spy	" "	"
" 16.	"	41	1104	" Belmont	" "	"

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P.O. ADDRESS AND REMARKS.
Sept. 16.	D.	42	1105	Plate Fameuse.....	South Haven Pom. Soc'y..	South Haven.
" 16.	"	43	1106	" Bailey Sweet.....	" " " " " "	" "
" 16.	"	47	1107	" Yellow Bellflower.....	" " " " " "	" "
" 16.	"	48	1108	" Talman Sweet.....	" " " " " "	" "
" 16.	"	53	1109	" Esopus Spitzenberg.....	" " " " " "	" "
" 16.	"	58	1110	" Transcendent crab.....	" " " " " "	" "
" 16.	E.	13	1111	" Bartlett pears.....	" " " " " "	" "
" 16.	"	14	1112	" Buffam.....	" " " " " "	" "
" 16.	"	15	1113	" Flemish Beauty.....	" " " " " "	" "
" 16.	"	16	1114	" Seckel.....	" " " " " "	" "
" 16.	"	17	1115	" Onondaga.....	" " " " " "	" "
" 16.	F.	2	1116	" Hale's Early peaches.....	" " " " " "	" "
" 16.	"	2	1117	" Crawford.....	" " " " " "	" "
" 16.	"	3	1118	" Jaques.....	" " " " " "	" "
" 16.	"	4	1119	" Hale's Early.....	" " " " " "	" "
" 16.	"	5	1120	" Wheeler's Early.....	" " " " " "	" "
" 16.	"	8	1121	" Crawford's Early.....	" " " " " "	" "
" 16.	"	9	1122	" Barnard (Thomas).....	" " " " " "	" "
" 16.	"	10	1123	" Old Mixon.....	" " " " " "	" "
" 16.	"	11	1124	" Jaques.....	" " " " " "	" "
" 16.	"	12	1125	" Crawford's Late.....	" " " " " "	" "
" 16.	"	13	1126	" Hill's Chili.....	" " " " " "	" "
" 16.	"	16	1127	" Stamp the World.....	" " " " " "	" "
" 16.	"	23	1128	" Geo. the IV.....	" " " " " "	" "
" 16.	"	28	1129	" Yellow Rareripec.....	" " " " " "	" "
" 16.	G.	6	1130	" Delaware grapes.....	" " " " " "	" "
" 16.	"	15	1131	" Croton.....	" " " " " "	" "
" 16.	K.	1	1132	" Col. dried fruits, by any process.....	" " " " " "	" "
" 16.	"	5	1133	" Dried apples.....	" " " " " "	" "
" 16.	"	6	1134	" pears.....	" " " " " "	" "
" 16.	"	7	1135	" peaches.....	" " " " " "	" "
" 16.	"	8	1136	" plums.....	" " " " " "	" "
" 16.	"	9	1137	" cherries.....	" " " " " "	" "
" 16.	"	10	1138	" strawberries.....	" " " " " "	" "
" 16.	"	11	1139	" raspberries.....	" " " " " "	" "
" 16.	"	12	1140	" blackberries.....	" " " " " "	" "
" 16.	"	13	1141	" whortleberries.....	" " " " " "	" "
" 16.	"	15	1142	" currants.....	" " " " " "	" "
" 16.	"	16	1143	" gooseberries.....	" " " " " "	" "
" 16.	"	17	1144	" elderberries.....	" " " " " "	" "
" 16.	"	19	1145	" pumpkin.....	" " " " " "	" "
" 16.	"	20	1146	" peas.....	" " " " " "	" "
" 16.	"	21	1147	" corn.....	" " " " " "	" "
" 16.	"	22	1148	" grapes.....	" " " " " "	" "
" 16.	"	23	1149	" crab apples.....	" " " " " "	" "
" 16.	"	24	1150	" tomatoes.....	" " " " " "	" "
" 16.	"	25	1151	" citrons.....	" " " " " "	" "
" 16.	"	28	1152	" squash.....	" " " " " "	" "
" 16.	"	29	1153	" sweet potatoes.....	" " " " " "	" "
" 16.	"	30	1154	" beans.....	" " " " " "	" "
" 16.	"	31	1155	" Irish potatoes.....	" " " " " "	" "
" 16.	"	32	1156	" pound raisins.....	" " " " " "	" "
" 16.	D.	26	1157	Plate Fall Pippin apples.....	J. M. Sanford.....	Grass Lake.
" 16.	"	34	1158	" R. I. Greening.....	" " " " " "	" "
" 16.	"	55	1159	" Alexander.....	" " " " " "	" "
" 16.	R.	9	1160	Collection Asters.....	Asa W. Slayton.....	Saranac.
" 16.	"	10	1161	" Stocks.....	" " " " " "	" "
" 16.	"	11	1162	" Coxcombs.....	" " " " " "	" "
" 16.	"			<i>Vick's special list over 20:</i>		
" 16.	"		1163	Collection Asters.....	" " " " " "	" "
" 16.	"		1164	" Stocks.....	" " " " " "	" "
" 16.	G.	6	1165	Plate Delaware grapes.....	Judge J. G. Ramsdell.....	Traverse City.
" 16.	"	7	1166	" Israella.....	" " " " " "	" "
" 16.	"	13	1167	" Adirondack.....	" " " " " "	" "
" 16.	"	18	1168	" Malinda.....	" " " " " "	" "
" 16.	F.	6	1169	" Cooleedge Favorite.....	" " " " " "	" "
" 16.	N.	9	1170	" Tona wine.....	" " " " " "	" "
" 16.	"	11	1171	" Mixed wine.....	" " " " " "	" "
" 16.	D.	37	1172	Plate Golden Russet.....	" " " " " "	" "
" 16.	"	42	1173	" Fameuse.....	" " " " " "	" "
" 16.	"	55	1174	" Rambo.....	John Gilbert.....	Ovid.
" 16.	"	55	1175	" Fallwater.....	" " " " " "	" "
" 16.	"	55	1176	" Gravenstein.....	" " " " " "	" "
" 16.	J.	2	1177	" Quinces.....	South Haven Pom. Soc'y..	South Haven.
" 16.	E.	29	1178	" Duchesse D'Angouleme pears.....	" " " " " "	" "
" 16.	D.	4	1179	" winter apples.....	N. & C. Chilson.....	Battle Creek.
" 16.	G.	18	1180	" Northern Muscadine grape.....	" " " " " "	" "
" 16.	"	9	1181	" Iona.....	Judge J. G. Ramsdell.....	Traverse City.
" 16.	V.	4	1182	Fruit Crate.....	Daniel Crane.....	Saginaw City.

REGISTER OF ENTRIES.—CONTINUED.

DATE OF ENTRY.	Div.	Class.	No.	ARTICLE.	BY WHOM ENTERED.	P. O. ADDRESS AND REMARKS.
Sept. 16.	V.	-----	1183	<i>Vick's special list under 20:</i>	Miss Susie Rowe	Walker.
" 16.	G.	8	1184	Collection Pansies.....	J. W. Humphrey	Plymouth.
" 16.	"	4	1185	Concord grapes.....	" "	"
" 16.	"	16	1186	Hartford Prolific.....	" "	"
" 16.	"	19	1187	Rebecca.....	" "	"
" 16.	"	19	1187	Wilder.....	" "	"
" 16.	"	6	1188	Delaware.....	" "	"
" 16.	E.	19	1189	Beurre D'Anjou pears.....	" "	"
" 16.	"	27	1190	" Diel.....	" "	"
" 16.	"	15	1191	Flemish Beauty.....	" "	"
" 16.	"	29	1192	Prince St. Germain.....	" "	"
" 16.	D.	55	1193	Scarlet Pearmain apples.....	" "	"
" 16.	"	55	1194	Wine.....	" "	"
" 16.	"	55	1195	Washington Strawberry.....	" "	"
" 16.	"	55	1196	Hawthornden.....	" "	"
" 16.	"	55	1197	Western Spy.....	" "	"
" 16.	"	55	1198	McClellan.....	" "	"
" 16.	"	55	1199	Garretson's Early.....	" "	"
" 16.	"	55	1200	Macomber.....	" "	"
" 16.	"	55	1201	Greene's Choice.....	" "	"
" 16.	"	36	1202	Red Canada.....	" "	"
" 16.	"	43	1203	Bailey's Sweet.....	" "	"
" 16.	"	40	1204	Northern Spy.....	" "	"
" 16.	"	25	1205	Blenheim Pippin.....	" "	"
" 16.	"	26	1206	Fall Pippin.....	" "	"
" 16.	B.	2	1207	Town collection.....	Hunter Savidge	Spring Lake.
" 16.	T.	8	1208	Flat boquets.....	Mrs. E. Platt	Jonesville.
" 16.	"	9	1209	Collection boquets.....	" "	"
" 16.	T.	55	1210	Washington Strawberry.....	D. Woodman	Paw Paw.
" 16.	Vick	-----	1211	Collection Phlox Drummondii.....	Mrs. E. Platt	Jonesville.
" 16.	Q.	2	1212	" Verbenas.....	" "	"
" 16.	E.	15	1213	Flemish Beauty pears.....	H. M. Bradley	Bay City.
" 16.	D.	35	1214	Baldwin apples.....	Josiah Mastin	Oakfield.
" 16.	"	40	1215	Northern Spy.....	" "	"
" 16.	"	39	1216	Wagener.....	" "	"
" 16.	"	4	1217	Ten apple trees, three years old.....	N. P. Husted	Lowell.
" 16.	G.	1	1218	Native grapes.....	P. C. Davis	Kalamazoo.
" 16.	T.	11	1219	Boquet of dried everlasting flowers.....	Mrs. W. S. Parsons	Grand Rapids.
" 16.	"	1	1220	Ornamental display of fruit.....	W. N. Rowe	Walker.
" 16.	G.	3	1221	Native grapes, collection.....	A. S. Howard	Allegan.
" 16.	I.	2	1222	Seedling autumn apples.....	John Byers	Bainbridge.
" 16.	"	3	1223	" winter.....	" "	"
" 16.	D.	4	1224	Red Canada.....	A. L. Linderman	Grand Rapids.
" 16.	"	-----	1225	Tulpehocken.....	Chas. Wagener	Penn Yan, N. Y.
" 16.	"	-----	1226	Seek-no-further.....	" "	"
" 16.	"	-----	1227	Wagener.....	" "	"
" 16.	"	-----	1228	Maiden's Blush.....	" "	"

OFFICIAL LIST OF THE PREMIUMS AWARDED TO EXHIBITORS.

Nomenclature.—First premium, best named collection, J. W. Humphrey, Plymouth, diploma or \$25; second premium, I. E. Ilgenfritz & Co., Monroe, \$15; third premium, N. P. Husted, Lowell, \$10.

S. O. Knapp, Jackson, chairman *pro tem*.

DIVISION B, CLASS 1.

County Collections.—First premium, Van Buren county, \$100; second premium, Grand Traverse county, \$60; third premium, Wayne county, \$40; fourth premium, Clinton county, \$30; fifth premium, Eaton county, \$20.

Report of Committee on State and County Collections.—The committee on State and County Collections would respectfully submit the following report:

In our examination we found no State collections entered for competition.

The counties competing in this division were Wayne, Clinton, Eaton, Van Buren and Grand Traverse, which from their location would seem to fairly represent the Eastern, Western, Middle and Northern portions of the lower

peninsula. The effect of the severe cold of last winter is quite plainly indicated by the want of some of the tender varieties of fruit in some of these collections. Wayne and Clinton exhibit fine collections of apples and pears, and some fine specimens of grapes, but no peaches or plums; while Van Buren and Grand Traverse counties, in addition to a fine display of apples and pears, were also able to show fine collections of peaches, plums, and grapes. Wayne county presented the best arranged, the most accurately named, and the largest collection of apples, and the excellence of the several varieties were not inferior to any of the others. The apples in this collection were selected from the orchard of John W. Humphrey, Esq., of Plymouth. This orchard was planted by T. T. Lyon, Esq., during the years between 1847 and 1852, and comprises one of the most extensive collections of varieties of any orchard in the State.

Clinton county presented the next largest collection of apples, equal perhaps in excellence with Wayne as far as the varieties extended, but not so well arranged or so accurately named.

Van Buren county presented the largest display of peaches and pears, and Grand Traverse county the best collection of plums and grapes. The Eaton county collections had only apples and pears that merit notice, and of these the apples seemed to have been selected more with reference to size than excellence. In this connection we deem it proper to caution exhibitors against this too common error. Apples may be too large as well as too small. It is not the largest but the best that merits an award. In selecting the best, perfection of form and color, fairness of skin, freedom from worms, and all other visible defects should be considered as well as the size.

In determining the best collection of fruit we deemed that superior and numerous specimens of a large variety of commercial fruits should have greater weight than equally good, but more numerous specimens of one or two varieties.

With this view we consider Van Buren county entitled to the first premium, Grand Traverse to the second, Wayne to the third, Clinton to the fourth, and Eaton to the fifth, and have so awarded.

But while we feel justified under the present system in making this award, we deem the practice of awarding premiums for the best county collection of fruit unjust to the eastern and interior portions of the State. Those counties favored with the softening influences of Lake Michigan can raise with profit a large number of the tender varieties which cannot be grown generally, or with success, in other counties not so favored, while they stand an equal chance in the cultivation of the more hardy varieties. We would therefore recommend that hereafter the premium list be so changed that counties may be allowed to compete with those varieties of commercial fruits which they are able to raise with profit. As it now stands the county showing the best general collection gets \$100; second, \$60; third, \$40; fourth, \$30, and fifth \$20,—making in all \$250. In place of this we would suggest the following: A first and second premium for best county collections of apples; same for best county collections of pears; same for best county collections of peaches; same for best county collections of plums, and the same for the best county collections of grapes,—in all not to exceed \$200.

At present exhibitors are allowed to show fruits out of season, in competition, prepared in any manner that will save their form and color. Under this provision Van Buren county presented many varieties preserved in jars, by a process which is kept a secret by those who preserved them. As the great

object of this society is to publish and disseminate valuable information upon all subjects connected with the raising, protecting, and preserving of fruit, if this provision is to remain in force we would suggest the attachment of the following provision to the resolution: "Provided the process by which the same is preserved is given in full to the committee for publication in their report."

All of which is respectfully submitted.

J. G. Ramsdell, chairman, Traverse City; Wm. I. Blakely, A. E. Pardee, G. W. Bruckner, committee.

DIVISION B, CLASS 2.

Township Collections—First premium, W. N. Rowe, Walker township, Kent county, \$50; second premium, Reynolds, Lewis & Co., Monroe township, Monroe county, \$30; third premium, Hunter Savidge, Spring Lake township, Ottawa county, \$20; fourth premium, Joseph Gridley, Kalamo township, Eaton county, \$15; fifth premium, S. M. Pearsall, Alpine township, Kent county, \$10.

C. N. Merriman, chairman, Grand Rapids; E. J. Shirts, Shelby, G. W. Toles, Benton Harbor, committee.

DIVISION B, CLASS 3.

Best Society Collection—by South Haven Pomological Society, \$20.

DIVISION B, CLASS 4.

Best Collection Grown by Exhibitor—First premium, N. P. Husted, Lowell, Kent county \$25; second premium, N. & C. Chilson, Battle Creek, \$15.

John Gilbert, Ovid, Clinton county; Henry Holt, Cascade, Kent county, committee.

VICK'S SPECIAL PRIZES.

To persons over 20 years of age:

Best Collection Cut Flowers—First premium, \$20; Mrs. Wm. Rowe, Walker, Kent county.

Collection of Phlox Drummondii—First premium, \$10; Chas. Wilde, Berlin, Ottawa county.

Collection Asters—First premium, \$10; Mrs. Asa W. Slayton, Saranac, Ionia county.

Collection of Balsams—First premium, \$10; Mrs. Wm. Rowe, Walker, Kent county.

Collection of Dianthus—First premium, \$10; Mrs. Geo. Smith, Walker, Kent county.

Collection of Pansies—First premium, \$10; Mrs. Geo. Smith, Walker, Kent county.

Collection of Stocks—First premium, \$10; Chas. Wilde, Berlin, Ottawa county.

Collection of Gladiolus—First premium, \$10; Mrs. Geo. Smith, Walker, Kent county.

Collection of Everlasting Flowers and Grasses—First premium, \$10; Mrs. Wm. Rowe, Walker, Kent county.

Flowers grown by persons under 20 years of age:

Cut Flowers, Largest Collection—First premium, \$10; Master Chas. Wilde, Berlin, Ottawa county.

Collection Phlox Drummondii—First premium, \$5; Master Chas. Wilde, Berlin, Ottawa county.

Collection Asters—First premium, \$5; Master Amos Rathbun, Grand Rapids.

Collection Dianthus—First premium, \$5; Miss Susie Rowe, Walker, Kent county.

Collection Pansies—First premium, \$5; Miss Susie Rowe, Walker, Kent county.

Collection Stocks—First premium, \$5; Master Chas. Wilde, Berlin, Ottawa county.

Collection Everlasting Flowers and Grasses—First premium, \$5; Miss Susie Rowe, Walker, Kent county.

Remarks.—Your committee were unanimous in every decision, which should be satisfactory to exhibitors. Much credit is due to those exhibitors under twenty years, who have shown a taste in one of the first of accomplishments,—the cultivation of flowers. We only hope that many more may follow their example and add their productions to the ornamentation of our future exhibitions.

C. J. Dietrich, Grand Rapids, Mrs. C. J. Dietrich, Grand Rapids, Mrs. C. L. Whitney, Muskegon, Miss Lee Denham, Quincy, Miss M. A. Warrall, Victor, N. Y., committee.

DIVISION C.—FRUITS RECOMMENDED BY THE SOCIETY.

Collection Summer Apples—Discretionary premium, N. P. Husted, Lowell, Kent county, \$5; discretionary premium, N. & C. Chilson, Battle Creek, Calhoun county, \$4.

Collection Autumn Apples—Discretionary premium, N. & C. Chilson, Battle Creek, \$10; discretionary premium, N. P. Husted, Lowell, \$3.

Collection Winter Apples—Discretionary premium, N. P. Husted, Lowell, \$10; discretionary premium, I. E. Ilgenfritz & Co., Monroe, \$6; discretionary premium, N. & C. Chilson, Battle Creek, \$3.

Collection Summer Pears—Discretionary premium, N. P. Husted, Lowell, \$3.

Collection Autumn Pears—Discretionary premium, C. Engle, Paw Paw, \$6; discretionary premium, I. E. Ilgenfritz & Co., Monroe, \$3.

Collection Winter Pears—First premium, C. Engle, Paw Paw, \$10; discretionary premium, I. E. Ilgenfritz & Co., Monroe, \$3.

Collection Plums for Market—Discretionary premium, N. P. Husted, Lowell, \$3.

Collection Grapes for Market—Discretionary premium, N. P. Husted, Lowell, \$4; discretionary premium, C. Engle, Paw Paw, \$4.

Remarks.—The committee recommend the revision of the whole list of fruits in this division, and a cutting down the number in several classes, especially in apples. Also that the classification of "market," "family" and "amateur" be abolished, and that a list for succession be adopted. The committee urge that the officers insist on strict compliance with the printed instructions, and that no verbal instructions be given outside the rules. We find the collections very incomplete, and recommend only discretionary premiums, such as the funds of the Society will warrant them in giving.

Committee—Judge B. F. Graves, Edward Bradfield, S. S. Bailey, A. C. Glidden, A. Sigler, J. Webster Childs.

DIVISION D.—APPLES.

Collection of Apples—First premium, N. P. Husted, Lowell, Kent county, \$20; second premium, Joseph Gridley, Kalamo, Eaton county, \$10; third premium, Charles Alford, Lamont, Ottawa county, \$5.

Plate Summer Apples—First premium, John Gilbert, Ovid, Clinton county, Primate, \$2; second premium, Charles Alford, Lamont, Sweet Bough, \$1; third premium, Joseph Gridley, Kalama, Primate, 50c.

Plate Autumn Apples—First premium, John Gilbert, Ovid, Maiden's Blush, \$2; second premium, Charles Alford, Lamont, Chenango Strawberry, \$1.

Plate Winter Apples—First premium, A. T. Linderman, Grand Rapids, Red Canada, \$2; second premium, John Gilbert, Ovid, Wagener, \$1; third premium, Charles Alford, Lamont, R. I. Greening, 50c.

Plate Early Harvest—Second premium, I. E. Ilgenfritz & Co., Monroe, \$1.

Plate Red Astrachan—First premium, South Haven Pomological Society, \$1; second premium, John Gilbert, Ovid, 50c.

Plate Maiden's Blush—First premium, H. Dale Adams, Kalamazoo, \$1; second, South Haven Pomological Society, 50c.

Plate Sweet Bough—First premium, South Haven Pomological Society, \$1; second, S. M. Pearsall, Alpine, Kent county, 50c.

Plate Early Strawberry—First premium, Charles Alford, Lamont, \$1.

Plate Early Joe—First premium, N. P. Husted, Lowell, \$1; second premium, N. & C. Chilson, Battle Creek, 50c.

Plate Summer Rose—I. E. Ilgenfritz & Co., Monroe, \$1.

Plate Lowell—First premium, Reynolds, Lewis & Co., Monroe, \$1; second premium, James Craigh, Lamont, Ottawa county, 50c.

Plate Porter—First premium, Reynolds, Lewis & Co., Monroe, \$1; second premium, I. E. Ilgenfritz & Co., Monroe, 50c.

Plate Keswick Codlin—First premium, W. N. Rowe, Walker, Kent county, \$1; second premium, I. E. Ilgenfritz & Co., Monroe, 50c.

Plate 20-Ounce or Cayuga Red Streak—First premium, J. Flanders, Galesburg, Kalamazoo county, \$1; second premium, Charles Alford, Lamont, 50c; third premium, H. Dale Adams, Comstock, 25c.

Plate Chenango Strawberry—First premium, S. M. Pearsall, Alpine, \$1; second premium, South Haven Pomological Society, 50c.

Plate Peck's Pleasant—First premium, I. E. Ilgenfritz, Monroe, \$1; second premium, John Gilbert, Ovid, 50c; third premium, H. Dale Adams, Comstock, 25c.

Plate R. I. Greening—First premium, Norman Cummings, Englishville, Kent county, \$1; second premium, South Haven Pomological Society, 50c; third premium, Joseph Flanders, Galesburg, 25c.

Plate Baldwin—First premium, Norman Cummings, Englishville, \$1; second premium, I. E. Ilgenfritz & Co., Monroe, 50c.

Plate Red Canada—First premium, Norman Cummings, Englishville, \$1; second premium, H. Dale Adams, Comstock, 50c; third premium, J. W. Humphrey, Plymouth, Wayne county, 50c.

Plate Golden Russet—First premium, J. Flanders, Galesburg, \$1; second premium, J. G. Ramsdell, Traverse City, 50c.

Plate Roxbury Russet—First premium, S. M. Pearsall, Alpine, \$1; second premium, J. Flanders, Galesburg, 50c.

Plate Wagener—First premium, Norman Cummings, Englishville, \$1; second premium, Wm. N. Rowe, Walker, 50c.

Plate Hawley—First premium, H. Dale Adams, Comstock, \$1; second premium, Charles Alford, Lamont, 50c.

Plate Dyer—First premium, Charles Alford, Lamont, \$1.

Plate Jersey Sweet—First premium, James Craigh, Lamont, \$1; second premium, Charles Alford, Lamont, 50c.

Plate Fall Pippin—First premium, South Haven Pomological Society, \$1; second premium, J. W. Humphrey, Plymouth, 50c.

Plate Ohio Nonpareil—First premium, I. E. Ilgenfritz, Monroe, \$1.

Plate Summer Pearmain—First premium, F. M. Benham, Olivet, Eaton county, \$1; second premium, N. & C. Chilson, Battle Creek, 50c.

Plate Autumn Swaar—First premium, Wm. N. Rowe, Walker, \$1; second premium, N. & C. Chilson, Battle Creek, 50c.

Plate Jonathan—First premium, H. Dale Adams, Comstock, \$1; second premium, W. N. Rowe, Walker, 50c.

Plate Talman Sweet—First premium, J. Flanders, Galesburg, \$1; second premium, South Haven Pomological Society, 50c.

Plate Lady Sweet—First premium, I. E. Ilgenfritz & Co., Monroe, \$1; second premium, H. Dale Adams, Comstock, 50c.

Plate Grimes' Golden—First premium, I. E. Ilgenfritz & Co., Monroe, \$1.

Plate Swaar—First premium, N. & C. Chilson, Battle Creek, \$1.

Plate Esopus Spitzenberg—First premium, I. E. Ilgenfritz & Co., \$1; second premium, D. Woodman, Paw Paw, 50c.

Plate any other variety—First premium, James Craigh, Lamont, Fallawater, \$1; second premium, D. Woodman, Paw Paw, Rubicon, 50c; third premium, James Craigh, Lamont, Fall Orange, 25c.

Single variety Siberian Crab—First premium, Wm. N. Rowe, Walker, \$1.

Transcendent Crab—First premium, South Haven Pomological Society, \$1; second premium, Wm. N. Rowe, Walker, 50c.

Plate Northern Spy—First premium, J. Flanders, Galesburg, \$1; second premium, Wm. N. Rowe, Walker, 50c.

Belmont—First premium, I. E. Ilgenfritz & Co., Monroe, \$1; second premium, John Gilbert, Ovid, Clinton county, 50c; third premium, H. Dale Adams, Comstock, 25c.

Plate Fameuse—First premium, Wm. N. Rowe, Walker, \$1; second premium, I. E. Ilgenfritz & Co., Monroe, 50c.

Plate Bailey Sweet—First premium, J. W. Humphrey, Plymouth, \$1.

Plate Westfield Seek-no-further—First premium, J. Flanders, Galesburg, \$1; second premium, N. & C. Chilson, Battle Creek, 50c.

Plate Hubbardston Nonsuch—Second premium, L. R. Davis, Bowen, Kent county, 50c.

Plate Tompkins Co. King—First premium, J. Flanders, Galesburg, \$1; second premium, D. Woodman, Paw Paw, 50c.

Plate Yellow Bellflower—First premium, J. Flanders, Galesburg, \$1; second premium, I. E. Ilgenfritz & Co., Monroe, 50c.

Plate Large Red Crab—Second premium, F. M. Benham, Olivet, Eaton county, 50c.

Plate Montreal Beauty—Second premium, F. M. Benham, Olivet, Eaton county, 50c.

Committee—Asa W. Slayton, Saranac; H. E. Bidwell, South Haven; Chas. Alford, Lamont; Joseph Gridley, Kalamo; S. W. Fowler, Manistee.

NOTE.—It will be noticed that for the best plate of winter apples, the Red Canada received the first premium, the Wagener the second, and the R. I. Greening the third. There were twelve competitors in this class. The committee remarked that "we decide on the quality of the plate exhibited, and not on the merits of the varieties."

DIVISION E.—PEARS.

Best Collection Pears Grown by Exhibitor—First premium, I. E. Ilgenfritz & Co., Monroe county, \$20; second premium, E. Engle, Paw Paw, Van Buren county, \$10.

Plate Summer Pears—Second premium, I. E. Ilgenfritz & Co., Monroe county, \$1.

Autumn Pears—First premium, F. M. Benham, Olivet, Eaton county, \$2; second premium, C. W. L. Dietrich, Grand Rapids, \$1.

Plate Winter Pears—First premium, N. P. Husted, Lowell, \$2; second premium, Reynolds, Lewis & Co., Monroe county, \$1.

Plate Bartlett—First premium, I. E. Ilgenfritz & Co., Monroe county, \$1; second premium, S. M. Pearsall, Alpine, Kent county, 50c.

Plate Buffam—First premium, C. Engle, Paw Paw, \$1; second premium, South Haven Pomological Society, 50c.

Plate Flemish Beauty—First premium, South Haven Pomological Society, \$1; second premium, Mrs. W. N. Cook, Grand Rapids, 50c.

Plate Seckel—First premium, Wm. N. Rowe, Walker, \$1; second premium, C. Engle, Paw Paw, 50c.

Plate Onondaga—First premium, South Haven Pomological Society, \$1; second premium, I. E. Ilgenfritz & Co., Monroe county, 50c.

Plate White Doyenne—First premium, I. E. Ilgenfritz & Co., Monroe county, \$1; second premium, C. Engle, Paw Paw, 50c.

Plate Beurre d'Anjou—First premium, Reynolds, Lewis & Co., Monroe, \$1; second premium, J. W. Humphrey, Plymouth, 50c.

Plate Clapp's Favorite—First premium, N. P. Husted, Lowell, \$1.

Plate Sheldon—First premium, H. Dale Adams, Comstock, \$1; second premium, Reynolds, Lewis & Co., Monroe, 50c.

Plate Fondante d'Automne—First premium, C. Engle, Paw Paw, \$1.

Plate Lawrence—First premium, C. Engle, Paw Paw, \$1; second premium, I. E. Ilgenfritz & Co., Monroe county, 50c.

Plate Buerre Diel—First premium, J. W. Humphrey, Plymouth, \$1; second premium, I. E. Ilgenfritz & Co., Monroe county, 50c.

Plate Winter Nelis—First premium, C. Engle, Paw Paw, \$1; second premium, I. E. Ilgenfritz & Co., Monroe county, 50c.

Plate other valuable variety—First premium, Wm. N. Rowe, Louise Bonne de Jersey, \$1; first premium, Reynolds, Lewis & Co., Buerre Clairgeau, \$1; first premium, South Haven Pomological Society, Duchesse, \$1; second premium, C. Engle, Duchesse, 50c; second premium, James Snow, Muskegon, L'Bonne, 50c.

Committee.—H. C. Farnam, Whitehall, Muskegon county; L. S. Benham, Olivet, Eaton county; E. U. Knapp, Grand Rapids; F. M. Benham, Olivet, Eaton county.

DIVISION F.—PEACHES.

Early Peaches—First premium, Hale's Early, South Haven Pomological Society, \$2.

Cooledge's Favorite—First premium, Judge J. G. Ramsdell, Grand Traverse, \$1.

Crawford's Early—First premium, South Haven Pomological Society, \$1.

Barnard—First premium, South Haven Pomological Society, \$1; second premium, E. J. Shirts, Shelby, Oceana county, 50c.

Jacques Rareripe—First premium, South Haven Pomological Society, \$1.

Crawford's Late—First premium, John Roost, Holland, Ottawa county, \$1 ; second premium, South Haven Pomological Society, 50c.

Hill's Chili—First premium, South Haven Pomological Society, \$1.

Stump the World—First premium, South Haven Pomological Society, \$1.

George the Fourth—First premium, South Haven Pomological Society, \$1.

Mountain Rose—First premium, S. W. Fowler, Manistee, \$1.

Yellow Rareripe—Second premium, South Haven Pomological Society, 50c.

Committee.—S. L. Morris, Holland, Ottawa county; C. Engle, Paw Paw, Van Buren county; J. W. Humphrey, Plymouth, Wayne county; T. S. Purdy, Holland, Ottawa county.

Remarks.—The list of peaches is the one recommended by the Society for cultivation in this State, and includes a succession for family, amateur, and market purposes. The committee would respectfully submit the following report: There were but few entries in this division, and in most cases no competition, and yet those entered, in our judgment, were of such a quality as to merit a premium. The South Haven Pomological Society exhibits some fine fruit, Crawfords, Barnards, etc. The committee would make special mention of the plates of peaches exhibited by S. W. Fowler of Manistee; also a plate of Cooledge's Favorite, from J. G. Ramsdell of Traverse City, which were very fine.

DIVISION G.—GRAPES.

Collection Native Grapes, Grown by Exhibitor—First premium, P. C. Davis, Kalamazoo, diploma or \$20 ; second premium, C. Engle, Paw Paw, \$10.

Collection Foreign Grapes—First premium, A. Sigler, Adrian, diploma or \$20.

Greatest Number of Native Varieties—First premium, A. S. Howard, Allegan ; second premium, Pointe Aux Peaux Wine Co., Monroe, \$5.

Hartford Prolific—First premium, C. Engle, Paw Paw, \$1 ; second premium, J. W. Humphrey, Plymouth, 50c.

Delaware Grape—First premium, C. Engle, Paw Paw, \$1 ; second premium, N. P. Husted, Lowell, 50c ; third premium, N. & C. Chilson, Battle Creek.

Israella Grape—First premium, C. Engle, Paw Paw, \$1 ; second premium, T. F. Kleeman, Saugatuck, 50c ; third premium, Judge J. G. Ramsdell, Traverse City.

Concord Grape—First premium, C. Engle, Paw Paw, \$1 ; second premium, Henry P. Hanford, Bristol, Indiana, 50c ; third premium, Harlow Bacon, Holland.

Iona Grape—First premium, Henry P. Hanford, Bristol, Indiana, \$1 ; second premium, C. Engle, Paw Paw, 50c.

Ives' Seedling—First premium, Henry P. Hanford, Bristol, Indiana, \$1 ; second premium, Pointe Aux Peaux Wine Co., 50c ; third premium, C. Engle, Paw Paw.

Diana Grape—First premium, C. Engle, Paw Paw, \$1 ; second premium, Henry P. Hanford, Bristol, Indiana, 50c ; third premium, Harlow Bacon, Holland.

Adirondac—First premium, Judge J. G. Ramsdell, Traverse City, \$1.

Croton—First premium, South Haven Pomological Society, \$1.

Rebecca—First premium, J. W. Humphrey, Plymouth, \$1.

Any other valuable varieties—First premium, Pointe Aux Peaux Wine Co., Catawba, well ripened, \$1 ; second premium, N. & C. Chilson, Battle Creek, N. Muscadine, 50c ; third premium, N. & C. Chilson, Battle Creek, Sweet-water, 25c.

Plate Light Colored Foreign Grapes—First premium, A. Sigler, Adrian, \$1.

Plate Dark Colored Foreign Grapes—First premium, A. Sigler, Adrian, \$1 ; second premium, T. F. Kleeman, Saugatuck, Allegan county, 50c.

Plate Black Hamburg—First premium, A. Sigler, Adrian, \$1.

Plate Muscat of Alexandria—First premium, A. Sigler, Adrian, \$1.

Plate of Native Grapes of recent origin—First premium, C. Engle, Paw Paw, the Salem ; second premium, J. W. Humphrey, Plymouth, the Wilder.

Committee.—S. S. Lacy, Marshall ; Thomas Wilde, Berlin ; C. Chilson, Battle Creek.

Remarks of the Committee on Grapes.—To secure anything like a fair and impartial test and judgment the committee would recommend that specimens competing in each class be arranged in a group, each class by itself. The collections of Messrs. Husted & Bradfield, not inferior to any on exhibition, were not entered to compete. But the specimens on exhibition certainly entitle the collection of each to special mention as comprising all the standard varieties in great profusion and perfection. The committee desire to make honorable mention of each.

There were also on exhibition collections of most delicious grapes from the grapery of Capt. E. B. Ward, consisting of fine specimens of Black Hamburg, Chasselas, Muscat of Alexandria, White Frontignan, White Sweetwater, etc., that showed great skill and success in their cultivation.

The committee award the first premium in Class 2, greatest number of varieties, to A. S. Howard, of Allegan, whose fruit was of fine growth and well ripened. The first on exhibition is as follows: Iona, Agawam, Crevelling, N. Muscadine, Catawba, Israella, Hartford Prolific, Rebecca, Isabella, Rogers' 19, Salem, Wilder, Concord, Delaware, Diana, and Allen's Hybrid.

The collection of the Pointe Aux Peaux Wine Company was scarcely inferior in quality, but was confined more especially to wine-producing grapes of well ripened specimens, indicating a climate favorable to the production of the wine grape.

The committee have no sufficient data to determine the keeping qualities of the Diana and Wilder, but would incline to the opinion that the Diana has the preference.

The well ripened specimens of so many superior grapes, representing so many different localities, from Wayne and Monroe counties on the east, from Calhoun, Kalamazoo, Van Buren, and Kent, centrally located, and the whole range of the eastern shore of Lake Michigan from Traverse City to South Haven, answers the question, as to whether Michigan is a grape State, so conclusively as to place that question practically at rest.

The exhibition of well ripened, delicious grapes, is a subject of great gratification to all, and justifies the most sanguine anticipations as to the future of this most interesting branch of industry.

The committee also desire to mention the specimens of foreign grapes exhibited by Mr. Sigler, of Adrian, as specimens showing great skill and success in their cultivation.

All of which is respectfully submitted.

SAMUEL S. LACEY,
CHESTER CHILSON,
THOS. WILDE.

NOTE.—A well ripened specimen of Isabella, by G. W. Dickinson, of Grand Rapids, is worthy of notice.

DIVISION H.—PLUMS, APRICOTS AND NECTARINES.

Collection Plums—First premium, James Snow, Muskegon, \$10; second premium, N. P. Husted, Lowell, \$5.

Plate Washington—First premium, S. W. Fowler, Manistee, Michigan, \$1.

Plate Lombard—First premium, E. J. Shirts, Shelby, Oceana county, \$1.

Plate Duane's Purple—First premium, James Snow, Muskegon, \$1.

Plate Yellow Egg—First premium, E. J. Shirts, Shelby, Oceana county, \$1.

Plate Coe's Golden Drop—First premium, James Snow, Muskegon, \$1.

Plate Bavay's Green Gage—Second premium, E. J. Shirts, Shelby, Oceana county, 50c.

Plate Jefferson—First premium, James Snow, Muskegon, \$1.

Plate Imperial Gage—First premium, James Snow, Muskegon, \$1.

Plate any valuable variety not enumerated—First premium, N. P. Husted, Lowell, \$1.

This plum, named "Seedling," the committee recommend be called the "Husted Plum."

Committee.—Joseph Gridley, Kalamo, Eaton county; S. M. Pearsall, Alpine, Kent county.

NOTE.—At a meeting held at Sweet's Hotel the above report was adopted, and the Seedling Plum was christened the "Husted Plum."

The Husted Plum.—This plum was brought to the notice of the State Pomological Society at the festival at South Haven, 1873, where it received a commendatory notice from the proper committee. It was again shown, in fine condition, at the State Fair, showing its capacity as a keeper. It cannot be claimed to be superior in quality to other plums of its season, and it is understood that the commendations of the committee are bestowed upon it rather on account of its alleged hardiness and ability to repel the curculio.

It originated with N. P. Husted, of Lowell, Kent county, Mich., from sprouts growing from the stock of a grafted tree, and has now grown three full crops.

Fruit, below medium size, roundish, flattened, regular. Suture distinct. Stalk, half an inch long, slender; inserted in a slight, regular cavity. Apex, slightly depressed. Color, dark, dingy purple. Surface profusely marked with large, roughened grayish specks, many of them considerably elongated transversely to the axis of the fruit, and the whole surface covered with a dense whitish blue bloom. Flesh, greenish orange, rich, juicy, vinous; skin slightly astringent; flesh adhering to the very small, nearly round, rather flattened pit. Quality, very good. Season, first to fifteenth of September, and keeps well.

Tree a strong upright grower; old wood lightish green; young wood slender, smooth; buds shouldered; foliage small, glossy, flat, recurved. Very hardy, and resists the curculio better than any others. Worthy of trial.

T. T. LYON.

DIVISION I.—SEEDLING FRUITS.

Your committee have carefully examined all seedling fruits and find none worthy of final recommendation save an Autumn Crab, presented by John Byers of Bainbridge, Berrien county. This is a fine fruit, of good color and delicate flavor. A grape presented by the same party the committee would reserve judgment upon until it has received further trial.

Committee.—H. E. Bidwell, South Haven, chairman; N. Chilson, Battle Creek; W. I. Blakely, Grand Rapids.

Byers' Beauty—This is a new variety of the Siberian Crab, originating at

Bainbridge, Berrien county, Mich., on the premises of John Byers, at whose request it was named by the State Pomological Society, at its meeting at South Haven, September 5, 1873; it being then just at maturity.

It is large of its class, averaging about two inches in diameter. Form ovate, conical, slightly flattened. Calyx very small, partially open; segments reflexed; set in a narrow, abrupt, but rather shallow plaited or wrinkled basin. Stem one and one-fourth inches long, rather slender, and inclined to one side; set in a rather deep, narrow, regular cavity; very distinctly marked with yellowish grey russet about the stem; aside from which the entire surface of the fruit is covered with rich, dark glossy red, with occasional spots of orange showing through it, and a few small specks of yellowish orange scattered over the surface. Flesh yellowish white, crisp, acid, juicy, rich, and to those who admire a high flavored fruit, very pleasant for dessert. Core open, large (for the size of the fruit), seeds medium in size and number.

The tree sprang up among a lot of seedlings intended for grafting, but, the grafts failing in this, it was allowed to grow up, and has now been in bearing nearly twenty years, and has proved hardy and a regular profuse bearer. We regard it as an exceedingly beautiful, and very promising variety.

T. T. LYON.

DIVISION J.—QUINCES AND NUTS.

Plate Quinces—First premium, Charles Alford, Lamont, Ottawa county, \$1; second premium, J. Flanders, Galesburg, Kalamazoo county, 50c.

Collection of Native Nuts—First premium, Wm. N. Rowe, Walker, Kent county, \$2; second premium, H. H. Richards, Grand Rapids, \$1.

Half-peck Hazelnuts—First premium, H. H. Richards, Grand Rapids, \$1.

Half-peck Hickorynuts—First premium, H. H. Richards, Grand Rapids, \$1.

Half-peck Butternuts—First premium, Charles Alford, Lamont, \$1; second premium, H. H. Richards, Grand Rapids, 50c.

Plate Peanuts—First premium, Charles H. Beattie, Grand Rapids, \$1; second premium, W. N. Rowe, Walker, 50c.

Plate Blackberries—First premium, F. M. Benham, Olivet, \$1.

Committee.—H. Dale Adams, Kalamazoo; P. W. Johnson, Indian Creek.

DIVISION K.—DRIED FRUIT.

Collection Dried Fruit by any process—First premium (diploma), South Haven Pomological Society.

Collection Domestic Dried Fruit—First premium, L. C. Lincoln, Greenville, Montcalm county, \$5; second premium, John Gilbert, Ovid, Clinton county, \$3.

Dried Apples by any process—First premium, South Haven Pomological Society, \$1; second premium, J. W. Barnard, Robinson, Ottawa county, 50c.

Dried Peaches by any process—First premium, South Haven Pomological Society, \$1; second premium, J. W. Barnard, Robinson, 50c.

Dried Pears by any process—First premium, South Haven Pomological Society, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Dried Plums by any process—First premium, South Haven Pomological Society, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Dried Cherries by any process—First premium, South Haven Pomological Society, \$1; second premium, South Haven Pomological Society, 50c.

Dried Strawberries by any process—First premium, South Haven Pomological Society, \$1.

Dried Raspberries by any process—First premium, South Haven Pomological Society, \$1; second premium, J. W. Barnard, Robinson, 50c.

Dried Blackberries by any process—First premium, South Haven Pomological Society, \$1; second premium, J. W. Barnard, Robinson, 50c.

Dried Whortleberries by any process—First premium, South Haven Pomological Society, \$1; second premium, J. W. Barnard, Robinson, 50c.

Dried Quinces by any process—First premium, C. J. Dietrich, Grand Rapids, \$1.

Dried Currants by any process—First premium, South Haven Pomological Society, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Dried Gooseberries by any process—First premium, South Haven Pomological Society, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Dried Elderberries by any process—First premium, South Haven Pomological Society, \$1.

Dried Asparagus by any process—First premium, C. J. Dietrich, Grand Rapids, \$1.

Dried Pumpkins by any process—First premium, South Haven Pomological Society, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Dried Peas by any process—First premium, South Haven Pomological Society, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Dried Corn by any process—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

Dried Grapes by any process—First premium, South Haven Pomological Society, \$1.

Dried Crab Apples by any process—First premium, L. C. Lincoln, Greenville, \$1; second premium, South Haven Pomological Society, 50c.

Dried Tomatoes by any process—First premium, South Haven Pomological Society, \$1; second premium, C. J. Dietrich, Grand Rapids, 50c.

Dried Citrons by any process—First premium, J. W. Barnard, Robinson, \$1 second premium, South Haven Pomological Society, 50c.

Dried Pie-plant by any process—First premium, C. J. Dietrich, Grand Rapids, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Dried Squashes by any process—First premium, South Haven Pomological Society, \$1; second premium, C. J. Dietrich, Grand Rapids, 50c.

Dried Sweet Potatoes by any process—First premium, South Haven Pomological Society, \$1; second premium, C. J. Dietrich, Grand Rapids, 50c.

Dried Beans by any process—First premium, South Haven Pomological Society, \$1.

Dried Irish Potatoes by any process—First premium, South Haven Pomological Society, \$1; second premium, C. J. Dietrich, Grand Rapids, 50c.

Dried Pound Raisins by any process—First premium, South Haven Pomological Society, \$1.

Remarks by Committee.—A difficulty is found in deciding between fruits dried in sugar, and that in its natural state. It is doubtful if they should be entered in competition, but should have separate lists. We give preference to the fruit in its natural state as a rule. This necessarily excludes that dried in sugar from all first premiums.

Committee.—Judge S. L. Withey, Mrs. S. L. Withey, Grand Rapids.

DIVISION L.—CANNED AND PICKLED FRUITS.

Best Collection of Domestic Canned and Pickled Fruit—First premium, John Gilbert, Ovid, Clinton county, \$5.

Canned Pears—First premium, John Gilbert, Ovid, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Canned Peaches—First premium, Mrs. Allen Engle, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, Ottawa county, 50c.

Canned Plums—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, Mrs. W. N. Cook, Grand Rapids, 50c.

Canned Cherries—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, Mrs. W. N. Cook, Grand Rapids, 50c.

Canned Siberian Apples—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1.

Canned Strawberries—First premium, J. W. Barnard, Robinson, \$1; second premium, Mrs. W. N. Cook, Grand Rapids, 50c.

Canned Raspberries—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

Canned Blackberries—First premium, J. W. Barnard, Robinson, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Canned Whortleberries—First premium, L. C. Lincoln, Greenville, Montcalm county, \$1; second premium, J. W. Barnard, Robinson, 50c.

Canned Gooseberries—First premium, Mrs. Allen Engle, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

Canned Currants—First premium, J. W. Barnard, Robinson, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Canned Pie-plant—First premium, J. W. Barnard, Robinson, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Canned Tomatoes—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, Mrs. G. W. Dickinson, Grand Rapids, 50c.

Canned Corn—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, Mrs. G. W. Dickinson, Grand Rapids, 50c.

Pickled Peas—First premium, L. C. Lincoln, Greenville, \$1.

Pickled Apples—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1.

Pickled Tomatoes—First premium, Mrs. G. W. Dickinson, Grand Rapids, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Pickled Cucumbers—First premium, Mrs. Annie Lohr, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

Pickled Beans—First premium, Mrs. D. Schermerhorn, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

Pickled Catsup—First premium, Mrs. G. W. Dickinson, Grand Rapids, \$1; second premium, J. W. Barnard, Robinson, 50c.

SPECIAL PREMIUMS.

Pickled Muskmelon—First premium, J. W. Barnard, Robinson, Ottawa county, \$1; second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Pickled Onions—First premium, Mrs. Annie Lohr, Grand Rapids, \$1.

Pickled Balsam Apples—First premium, Annie Lohr, Grand Rapids, \$1.

Committee.—E. Buell, Kalamazoo; Mrs. H. Dale Adams, Kalamazoo; Mrs. Amos F. Wood, Mason.

THE WINES OF THE STATE FAIR.

REPORT ON WINES, CORDIALS, AND VINEGARS.

The committee to whom was referred the examination of the wines and other articles entered in Division N, Pomological Hall, respectfully report that they found the following entries, to which were made the awards and recommendations as marked :

1. The Urbana Wine Company of Hammondsport, New York, represented by Mr. Mershon of Grand Rapids, the best collection of American wines, the first premium of \$20.

In this collection there were a large number of champagnes and light dry table wines of remarkable quality. The gold seal champagne was decreed to be a wine of the very highest merit for delicacy and purity, and a complete freedom from any peculiar flavor of the American grape. Its bouquet was delicious, and its flavor and quality would place it equal to the very best imported French champagne that has ever come under the cognizance of your committee. The champagnes made from the Iona, the Diana, and the Delaware grapes, each had flavors of their own, but that made from the Diana was ranked next to the gold seal. To these wines the committee recommend a special silver medal, suitably inscribed. Of the dry wines tested there were the following, which were tried by the acidometer for the purpose of finding out what degree of acid there was in each :

Delaware—gave 7 degrees of acid, a light bouquet, and somewhat astringent in flavor.

Catawba— $7\frac{2}{3}$ of acid, heavy bouquet, rich, strong body, but pleasant to the taste, being somewhat sweet.

Sweet Isabella— $6\frac{1}{4}$ of acid, with very light bouquet; a sweet, pleasant beverage, with but little strength.

Iona— $6\frac{1}{4}$ of acid, a very mild, fine flavor, with a light bouquet; remarkably palatable and agreeable to tastes that are not accustomed to wines.

Claret— $6\frac{1}{2}$ of acid; a mild, light red wine with a medium bouquet, a pleasant astringent flavor, and which would rank as a good claret.

Sweet Catawba—was a rich, pleasant sweet wine, with a light bouquet of the grape that made it a pleasant beverage.

2. The Pointe Aux Peaux Wine Company of Monroe, Mich., represented by J. M. Stirling of Monroe, presented the best collection of wines, the product of Michigan; awarded the first premium of \$20.

3. To the same for the best collection of wines, the pure juice of grapes grown in the State, the first premium of \$20.

Amongst these wines were the following :

Concord of 1868—marking $4\frac{3}{4}$ degrees of acid, a rich body and fine bouquet; very pure and agreeable.

Concord of 1869— $8\frac{1}{4}$ acid; heavy strong wine with an odor of the grape.

Red Concord of 1870— $7\frac{1}{4}$ acid; light bouquet, medium in strength and flavor; rather astringent.

Norton's Virginia of 1860—7 of acid; dark high color, quite astringent in taste, a full bouquet, and medium in strength.

Delaware of 1870—5 of acid; fine delicate flavored wine, with a light bouquet; very pleasant.

Catawba of 1871—7 of acid; a wine of good body, light bouquet, and somewhat sweeter to the taste than the Delaware.

Isabella of 1871—6 $\frac{3}{4}$ of acid; a thin wine, light, not very vinous to the taste, and but little bouquet.

No. 2 Delaware of 1870—7 of acid; a good body and a rich vinous flavor, with a full bouquet and considerable strength.

The awards for these wines are as follows:

For the best Concord wine.....	\$2 00
Norton's Virginia.....	2 00
Ives' Seedling.....	2 00
Delaware.....	2 00
Isabella.....	2 00
For the best Iona wine, the Urbana Wine Company.....	2 00

Mr. Bradford, of Grand Rapids, as agent for the California wines from Santa Cruz, exhibited a sherry which measured six of acid; a wine rough and astringent, with a strong flavor of the Muscadine; a good, passable sherry. Also a port wine, seven of acid, a sweetish flavor with a somewhat sharp astringent taste, and a medium bouquet. Also a California brandy, an agreeable and smooth-tasted spirit that seemed pure and perfect.

To this collection of wines the committee recommended a diploma.

J. G. Ramsdell, of Traverse City, exhibited a wine made from the juice of the Iona grape. It was a light, sweet, half-fermented wine, that had a pleasant sharp sugary flavor, in the condition of sweet cider when in the vinous stage of fermentation. To the taste this beverage was much sweeter than any wine tested, yet under the acidometer it marked twelve degrees of acid, showing that it was fully four degrees above the condition required in the must to make a wine.

B. Joppe, of Grand Rapids, exhibited two cordials and a specimen of tonic bitters.

1. A maraschino, a fine cordial, beautiful in its coloring, rich and aromatic in its flavor, with a honey-like consistence in its body that made it the equal of the famous Sicilian liquor. Silver medal.

2. Creme de la Rose, a highly perfumed cordial of an exquisite purplish shade, sweet, and as a ladies' liquor of very high merit. A diploma.

3. Elixir, a tonic bitters of a most agreeable aromatic quality, and as a flavor for the dilution and qualifying of the American drinks and beverages, the committee consider it a superior article of its class. A diploma.

To Mrs. W. W. Barlow, Grand Rapids, for the best Currant Wine, \$2.

To J. W. Barnard, Robinson, Ottawa county, third premium, \$1.

To J. W. Barnard, Robinson, Ottawa county, for best Blackberry Wine, \$2.

To Point Aux Peaux Company, for best Elderberry Wine, \$2.

To Mrs. D. Schermerhorn, Grand Rapids, for best Gallon of Cider, \$2; for best Bottled Cider, \$2; for best Boiled Cider, \$2.

To D. L. Arnold, for best Cider Vinegar, \$2.

The committee find in their book a request that they answer the following questions:

Does sugar make wine? No; sugar makes alcohol enough, with the superabundance of acid, to preserve the liquor from becoming a vinegar in a short time.

Is wine culture to be encouraged in Michigan? The committee consider

the making of *pure wine* a business that is profitable, and which ought not to be discouraged any more than any other business. But the making of compounds called wines, which are only flavored and colored with grape juice, and are really mixtures of acid, sugar, water, and grape juice not in fit state of ripeness to make wine, ought to be discouraged.

The committee have not met with a white grape wine by which they could judge as to the quality of any variety, so as to answer the question of "Which is the best white grape for wine?"

"How does Michigan wine compare with California wines?" Most of the California wines which have come under the cognizance of the members of this committee have been distinguished by their roughness, and by a strong flavor of the Muscatel grape native to that country. This flavor is not pleasant, and the pure wines made in this State from the Catawba, the Delaware, and the Concord grapes, though generally of a thinner character, and more like the wines of the Moselle and the Rhine, are decidedly more delicate, more agreeable to the palate, richer in body, and of a more healthy tonic quality. Such wines as were presented by the Urbana Company, and by the Pointe Aux Peaux Company, would be esteemed of a high order in their several classes in any country, for their purity and freedom from all flavor, twang, or taste, odor or bouquet that did not belong to them as well made pure wines.

All of which is respectfully submitted.

R. F. JOHNSTONE, Detroit,
TALCOTT WING, Monroe,
MISS JENNIE ADAMS, Climax,
Committee.

DIVISION M.—PRESERVED FRUITS AND JELLIES.

Preserved Currants—Second premium, L. C. Lincoln, Greenville, Montcalm county, 50c.

Preserved Gooseberries—First premium, L. C. Lincoln, Greenville, \$1.

Preserved Tomatoes—First premium, L. C. Lincoln, Greenville, \$1.

Currant Jelly—Second premium, James Craigh, Lamont, Ottawa county, 50c.

Apple Jelly—First premium, James Craigh, Lamont, \$1; second premium, J. W. Barnard, Robinson, Ottawa county, 50c.

Siberian Crab Jelly—First premium, J. W. Barnard, Robinson, \$1; second premium, John Gilbert, Ovid, Clinton county, 50c.

Raspberry Jelly—First premium, J. W. Barnard, Robinson, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Washington Plum Jelly—First premium, James Craigh, Lamont, \$1.

Whortleberry Jelly—First premium, James Craigh, Lamont, \$1.

Gooseberry Jelly—First premium, L. C. Lincoln, Greenville, \$1.

Purple Plum Jelly—Second premium, James Craigh, Lamont, 50c.

Cranberry Jelly—Second premium, Mrs. D. Schermerhorn, Grand Rapids, 50c.

Transcendent Crab Jelly—Second premium, L. C. Lincoln, Greenville, 50c.

Blackberry Jam—First premium, J. W. Barnard, Robinson, \$1.

Red Raspberry Jam—First premium, J. W. Barnard, Robinson, \$1.

Committee—Mrs. D. W. C. Taylor, Mrs. F. W. Fairman, Miss Minnie Lyon, F. W. Fairman, all of Plymouth.

DIVISION O.—NURSERY STOCK.

Collection Nursery Stock, product of this State—First premium, N. P. Husted, Lowell, Kent county, \$10.

Collection Ornamental Nursery Stock—First premium, George Taylor, Kalamazoo, \$10 ; second premium, N. P. Husted, Lowell, \$5.

Ten Apple Trees 3 years old—First premium, N. P. Husted, Lowell, \$3.

Ten Apple Trees 2 years old—First premium, N. P. Husted, Lowell, \$3.

Ten Budded Peach Trees—First premium, N. P. Husted, Lowell, \$2.

Ten Grape Vines—First premium, N. P. Husted, Lowell, \$3 ; second premium, F. F. Kleeman, Saugatuck, Allegan county, \$2.

Remarks by Committee.—Your committee take pleasure in saying, in connection with the awards, that they found all the nursery stock entered of the very finest quality. The extensive collection of hardy evergreens by George Taylor, embracing nineteen varieties, was very superior; hardly less can be said of the stock by Mr. Husted. The fruit trees exhibited by him deserve more than a passing notice, and too much praise cannot be awarded to his justly superior specimens. No finer trees of the apple, pear, cherry, and peach, —especially of the Wagener,—can be found. Of this last we found three-year-olds bending under the weight of fruit. Your committee, from the specimens before them, must express their opinion that no tree planter would be wise in sending out of the State for a supply of fruit and ornamental trees while such truly fine specimens can be found within its own borders.

Committee.—H. Dale Adams, Kalamazoo ; E. Buell, Kalamazoo ; Charles Alford, Lamont.

Statement by George Taylor of Kalamazoo.—There is one form of planting evergreen trees which is now being entered into by many of our farmers and citizens, and I have no doubt will commend itself the more it is seen. I allude to the form of hedges, belts, clumps, and screens. A hedge of Norway Spruce placed a little way from the mansion house forming a division betwixt the lawn and the grounds without, has always a most pleasing effect. A fine specimen of this may be seen at the beautiful residence of E. O. Humphrey, Esq., Kalamazoo, on the north side of the river, on the Gull road, about a mile from town. Belts of evergreens planted so as to shelter an orchard or other grounds, are now commended and appreciated by all who have gone into it. And nothing has a finer effect to a house and the grounds adjacent, than clumps of evergreens judiciously placed in a park or lawn where a carriage drive winds its way in approaching the the house. Screens planted and so placed as to form a shelter or wind-break in winter, for sheep and other farm stock, will soon be found to be indispensable, not only as a saving of feed, but to the improvement of the stock and the profits resulting from it.

The most popular evergreen tree, for which there is the greatest demand, is the Norway Spruce. Its fine, dark green, its thick and finished appearance, with its symmetry of form, make it very desirable for both shelter and ornament; it can also be cut into any shape and size so as to suit the situation in which it may be placed.

The Scotch Pine is a rapid grower, and therefore should be placed on the back part of the grounds; as an evergreen tree for forest and shelter, it is one of the best; it will grow also on poor soil, and furnish good timber in twenty years.



THE AUSTRIAN PINE.

The Austrian Pine (*see cut*) is a fine hardy tree, having something of the habit and form of the Scotch Pine, but more dense and shorter in its annual growth; its form and symmetry is good, and it is therefore well adapted for an ornamental tree.

Our White Pine, which is known to the British Islands as the Weymouth Pine, is so well known as to need no description; it should be planted as a back-ground tree, the same as the Scotch Pine; its fine silvery foliage makes a good contrast when planted in clumps among other evergreen trees. The Balsam Fir, the American Arbor Vitæ, Red Cedar, and Hemlock Spruce, are all natives of our State, and are well known, but are nevertheless well worthy of a place, and for variety are indispensable in a general collection.

DIVISION P.—FLOWERS AND PARLOR PLANTS.

Collection of Flowers and Plants for Conservatory, product of this State—First premium, John Suttle, Grand Rapids, \$20.

Collection of Abutilons—First premium, W. R. Hibbard, Jackson, \$2; second premium, John Suttle, Grand Rapids, \$1.

Abutilon, single variety—First premium, D. L. Arnold, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Collection of Geraniums of all kinds—First premium, W. R. Hibbard, Jackson, \$3; second premium, John Suttle, Grand Rapids, \$2.

Collection of Zonale Geraniums—First premium, John Suttle, Grand Rapids, \$2.

Zonale Geranium, single variety—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Collection Double Flowering Geraniums—First premium, John Suttle, Grand Rapids, \$2.

Double Geranium, single variety—First premium, D. L. Arnold, Grand Rapids, \$1; second premium, John Suttle, Grand Rapids, 50c.

Collection of Scented Geraniums—First premium, John Suttle, Grand Rapids, \$2.

Scented Geranium—First premium, D. L. Arnold, Grand Rapids, \$1; second premium, John Suttle, Grand Rapids, 50c.

Collection of Gold, Silver, and Bronze Leaved Geraniums—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Variigated Leaved Geraniums—First premium, John Suttle, Grand Rapids, \$1.

Collection of Ivy Leaved Geraniums—First premium, John Suttle, Grand Rapids, \$2.

Ivy Geranium—First premium, John Suttle, Grand Rapids, \$1.

Collection of Fuschias—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Fuschia, single variety—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Fuschia, double variety—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Collection of Monthly Roses—First premium, John Suttle, Grand Rapids, \$2.

Monthly Roses—First premium, John Suttle, Grand Rapids, \$1.

Oleander—First premium, W. R. Hibbard, Jackson, \$1.

Calla—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Hoya or Wax Plant—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Collection of Begonias—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Flowering Begonia—First premium, W. R. Hibbard, Jackson, \$1; second premium, John Suttle, Grand Rapids, 50c.

Ornamental Leaved Begonia—First premium, John Suttle, Grand Rapids, \$1.

Collection Winter Blooming Plants, ten varieties—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Collection of Ornamental Foliage Plants, ten varieties—First premium, Wm. Rowe, Walker, Kent county, \$2; second premium, John Suttle, Grand Rapids, \$1.

Ornamental Foliage Plant, single variety—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50c.

Collection of Parlor Climbers, five or more varieties—First premium, John Suttle, Grand Rapids, \$2.

Parlor Climbers, single variety—First premium, John Suttle, Grand Rapids, \$1.

Collection of Cacti, five or more varieties—First premium, John Suttle Grand Rapids, \$2.

Cactus—First premium, John Suttle, Grand Rapids, \$1.

Collection of Ferns—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Collection of Native Ferns—First premium, John Suttle, Grand Rapids, \$1.

Fern, Single Variety—First premium, John Suttle, Grand Rapids, \$1.

Orange Tree—First premium, W. R. Hibbard, Jackson, \$1.

Collection of Basket Plants—First premium, John Suttle, Grand Rapids, \$2.

Hanging Basket, filled—First premium, John Suttle, Grand Rapids, \$1.

Wardian Case—First premium, John Suttle, Grand Rapids, \$1.

Bouvardia—First premium, John Suttle, Grand Rapids, \$1; second premium, W. R. Hibbard, Jackson, 50 cents.

Committee.—Mrs. H. G. Wells, Kalamazoo; Mrs. J. W. Childs, Ypsilanti; Jeremiah Brown, Battle Creek.

DIVISION Q.—BEDDING PLANTS.

Collection of Bedding Plants—First premium, John Suttle, Grand Rapids, \$5.

Collection of Verbenas—First premium, Charles Wilde, Berlin, Ottawa county, \$2; second premium, John Suttle, Grand Rapids, \$1.

Collection of Lantanas—First premium, W. R. Hibbard, Jackson, \$2; second premium, John Suttle, Grand Rapids, \$1.

Collection of Carnation Pinks—First premium, John Suttle, Grand Rapids, \$2.

Collection of Foliage Plants for Bedding—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Collection of Coleus—First premium, Wm. Rowe, Walker, Kent county, \$2; second premium, John Suttle, Grand Rapids, \$1.

Collection of Achryanthus—First premium, John Suttle, Grand Rapids, \$1.

Pyrethrum—First premium, John Suttle, Grand Rapids, \$1.

Verbena—First premium, Charles Wilde, Berlin, \$1; second premium, D. L. Arnold, Grand Rapids, 50c.

Seedling Verbena of 1873—First premium, Charles Wilde, Berlin, \$1; second premium, C. S. Randall, Lamont, Ottawa county, 50c.

Heliotrope—First premium, Wm. Rowe, Walker, \$1; second premium, John Suttle, Grand Rapids, 50c.

Lantana—First premium, W. R. Hibbard, Jackson, \$1; second premium, John Suttle, Grand Rapids, 50c.

Petunia—First premium, John Suttle, Grand Rapids, \$1; second premium, C. S. Randall, Lamont, 50c.

Double Petunia—First premium, John Suttle, Grand Rapids, \$1.

Coleus—First premium, John Suttle, Grand Rapids, \$1.

Achryanthus—First premium, John Suttle, Grand Rapids, \$1.

Centaurea—First premium, John Suttle, Grand Rapids, \$1.

Salvia—First premium, W. R. Hibbard, Jackson, \$1.

Aloysia (lemon verbenas)—First premium, D. L. Arnold, Grand Rapids, \$1; second premium, Wm. Rowe, Walker, 50c.

Carnation Pink—First premium, John Suttle, Grand Rapids, \$1.

Argeratum—First premium, John Suttle, Grand Rapids, \$1.

Committee.—C. L. Whitney, Muskegon, chairman; Mrs. C. L. Whitney, Muskegon; D. W. C. Taylor, Plymouth, Wayne county; Mrs. D. W. C. Taylor, Plymouth, Wayne county.

DIVISION R.—FLOWERS, HARDY AND HALF HARDY.

Collection of Flowers of hardy and half hardy—First premium, Mrs. Geo. Smith, Walker, Kent county, \$5; second premium, Wm. Rowe, Walker, Kent county, \$2.

Collection of Pansies—Second premium, Mrs. Geo. Smith, Walker, \$1.

Collection Antirrhinums, five or more varieties—Second premium, Wm. Rowe, Walker, \$1.

Collection Petunias—First premium, John Suttle, Grand Rapids, \$2; second premium; Wm. Rowe, Walker, \$1.

Collection Pinks, twenty-five or more varieties—First premium. Mrs. Geo. Smith, Walker, \$2.

Collection Annuals, twenty or more varieties—First premium, W. Rowe, Walker, \$2; second premium, Mrs. Geo. Smith, Walker, \$1.

Collection of Phlox Drummondii—First premium, L. C. Lincoln, Greenville, Montcalm county, \$2; second premium, Mrs. Geo. Smith, Walker, \$1.

Collection Asters—First premium, A. W. Slayton, Saranac, Ionia county, \$2; second premium, John Suttle, Grand Rapids, \$1.

Collection Stock, five or more varieties—First premium, Mrs. Geo. Smith, Walker, \$2; second premium, John Suttle, Grand Rapids, \$1.

Collection Coxcombs—First premium, Chas. Wilde, Berlin, Ottawa county, \$2; second premium, C. S. Randall, Lamont, Ottawa county, \$1.

Collection Everlasting Flowers—First premium, Wm. Rowe, Walker, \$2.

Collection Ornamental Grasses—Second premium, Wm. Rowe, Walker, \$2.

Collection Chrysanthemums—Second premium, John Suttle, Grand Rapids, \$2.

Pansy—First premium, Mrs. Geo. Smith, Walker, \$1.

Antirrhinums—First premium, Mrs. Geo. Smith, Walker, \$1.

Pink—First premium, John Suttle, Grand Rapids, \$1; second premium, Wm. Rowe, Walker, 50c.

Phlox Drummondii, single variety—First premium, Chas. Wilde, Berlin, \$1; second premium, L. C. Lincoln, Greenville, 50c.

Ten Weeks' Stock, single variety—First premium, Chas. Wilde, Berlin, \$1; second premium, Wm. Rowe, Walker, 50c.

Zinia, double, single variety—First premium, Wm. Rowe, Walker, \$1; second premium, D. L. Arnold, Grand Rapids, 50c.

Coxcomb, single variety—First premium, Chas. Wilde, Berlin, \$1; second premium, Wm. Rowe, Walker, 50c.

Altheas, single variety—First premium, Mrs. Geo. Smith, Walker, \$1.

Hybrid Perpetual Rose, single variety—First premium, John Suttle, Grand Rapids, \$1.

Hybrid Rose, single variety—First premium, John Suttle, Grand Rapids, \$1.

Single Rose, in bloom—First premium, John Suttle, Grand Rapids, \$1.

Committee.—S. O. Knapp, chairman, Jackson, Mr. and Mrs. Geo. S. Linderman, Grand Rapids, Mrs. Amanda Camp.

The following awards in classes S, T, U, and V, complete the list of premiums in the fruit, flower, and orchard departments of the Great State Fair at Grand Rapids.

DIVISION S.—BULBOUS PLANTS.

Collection of Dahlias—Third premium, John Suttle, Grand Rapids, \$1.
This collection was deficient in variety and quality.

Collection of Tuberoses—Second premium, John Suttle, Grand Rapids, \$1.

Collection of Gladiolus—Second premium, George Taylor, Kalamazoo, \$1.

Collection of any other family of bulbous plants—Second premium, Mrs. Geo. Smith, Walker, Kent county. This collection was too meagre in variety to merit a higher award. The plants exhibited were good.

Dahlia, variety, the Madge Wildfire—First premium, John Suttle, Grand Rapids, \$1.

Gladiolus—First premium, F. M. Benham, Olivet, Eaton county, \$1.

Calladiums, three plants—First premium, John Suttle, Grand Rapids, \$1.

Remarks by the Committee.—The collection of dahlias by Mr. James Vick, of Rochester, N. Y., though not entered for premium, is so very superior both in variety and quality that the committee feel under obligation to allude to it. We have selected the following named sorts as are, in our opinion, particularly fine:

Collection Dahlias exhibited by James Vick, selected list :—

Best White—The Pearl.

Best Yellow—The Yellow Boy.

Best Dark—The Toison d'Or.

Best Scarlet—The Rising Sun.

Best Light Scarlet—The Glory of Summer.

Best Crimson—The Flamingo.

Best Maroon—The Jas. Cocher.

Second best Crimson—The Chas. Bockhouse.

Best Dark Maroon—The Monarch.

Second best Dark Maroon—The High Sheriff.

Best Light Pink—The Formosa.

Best Salmon—The Leach.

Best Dark Pink—The Vedette.

Best Variegated White and Purple—The Dwarf Queen.

Best Variegated White and Red—The Gem of the Dwarfs.

Best Variegated Yellow and Red—The Chang.

The committee regret that the varieties of the Gladiolus exhibited by Mr. Geo. Taylor of Kalamazoo were shown as single flowers instead of spikes, and the committee were unable to judge of the blooming quality of the varieties.

The committee beg to refer to Mr. Vick's collection of these popular plants. Full spikes of a large number of named varieties were shown, and also a large assortment of seedlings quite as fine as the imported varieties, showing that from this time forward we need not depend upon France for varieties of this kind of plants.

The committee would recommend more care in arranging plants and in making entries, so as to bring competing plants together in classes.

Committee.—Charles Betts, Burr Oak, St. Joseph county; Will W. Tracy, Old Mission, Grand Traverse county; H. B. Holbrook, Portland, Ionia county; H. G. Reynolds, Old Mission, Grand Traverse county.

DIVISION T.

Ornamental Arrangement of Fruit—First premium, Wm. Rowe, Walker, Kent county, \$5; second premium, Wm. Rowe, Walker, \$3.

Floral Mound—First premium, W. R. Hibbard, Jackson, \$2.

Floral Design of any kind—First premium, Wm. Rowe, Walker, \$2.

Pair Round Bouquets—First premium, John Suttle, Grand Rapids, \$2; second premium W. R. Hibbard, Jackson, \$1.

Pair Flat Bouquets—First premium, John Suttle, Grand Rapids, \$2; second premium, W. R. Hibbard, Jackson, \$1.

Collection of Bouquets—First premium, Wm. Rowe, Walker, \$3; second premium, Mrs. E. Platt, Jonesville, \$2.

Bouquet of Dried Everlasting Flowers—First premium, Wm. Rowe, Walker, \$2; second premium, Mrs. W. S. Parsons, Paris, Kent county, \$1.

Basket of Everlasting Flowers and Grasses—First premium, Mrs. Wm. Rowe, Walker, \$2.

Hanging Basket of Flowers—First premium, Wm. Rowe, Walker, \$2.

Rustic Basket—First premium, John Suttle, Grand Rapids, \$2.

Ornamental Vases, six kinds—First premium, Samuel Davis, Grand Rapids.

Plain Vases, six kinds—First premium, Samuel Davis, Grand Rapids.

Committee.—Mrs. J. G. Ramsdell, Traverse City; Mr. and Mrs. N. P. Husted, Lowell; Miss Minnie Lyon, Plymouth; Prof. C. G. Swensberg, Grand Rapids.

DIVISION U.—FRUIT AND FLOWER ILLUSTRATIONS.

Collection of Fruit and Flower Pictures—First premium, Mrs. L. E. Patten, Grand Rapids, \$5.

Fruit Piece in Oil—First premium, Henry Seymour, Paris, Kent county, \$2; second premium, Wm. Rowe, Walker, \$1.

Flower Chromo—First premium, Henry Seymour, Paris, \$2; second premium, L. E. Patten, Grand Rapids, \$1.

Fruit Chromo—First premium, W. I. Blakely, Grand Rapids, \$2; second premium, Mrs. L. E. Patten, Grand Rapids, \$1.

Illustration of Single Fruit—First premium, L. E. Patten, Grand Rapids, \$2; second premium, Mrs. L. E. Patten, Grand Rapids, \$1.

Oil Painting (Traverse City and Surroundings)—Special premium, Mrs. J. R. Ramsdell, Traverse City, \$2.

Oil Painting—Special premium, Mrs. J. G. Ramsdell, Traverse City, \$2.

The committee would recommend that a Diploma be given to L. E. Patten for his fine display of paintings, steel engravings, and chromos.

Committee.—D. S. Beach, Marshall; J. J. Bush, Lansing; S. S. Lacey, Marshall.

DIVISION V.—FRUIT BASKET OR BOX.

Crate for small fruit, box or basket, discretionary premium, Daniel Crane, Saginaw City.

This, the committee think, might become of some practical use, and recommend a thorough trial.

The committee desire, also, to express their belief that the Fruit Protector, the recent invention of President A. S. Dyckman, will prove a great convenience to shippers, freighters, and commission men.

C. ENGLE, Paw Paw,
Chairman Committee.

LIST OF AWARDS AND REPORT OF THE COMMITTEE ON DIVISION A—
ORCHARDS, GARDENS, GREEN-HOUSES, ORNAMENTAL GROUNDS, AND
GENERAL NURSERIES.

The first premium of this division is the diploma of the Society, valued at \$20. Second and third premiums, not to exceed ten and five dollars in value, may be given in cash, books, magazines, newspapers, silverware, etc., as the exhibitor may desire.

Class 1.—For best apple orchard for profit, without reference to succession in bearing, planted not less than ten years nor less than two acres in extent: L. H. Bailey, South Haven, Van Buren county, diploma; Jeremiah Bridges, Van Buren county, no premium.

Class 2.—For apple orchard for profit, embracing a succession of summer, autumn and winter varieties, in bearing, planted not less than ten years, nor less than two acres in extent: L. S. Clarke, Cascade, Kent county, no premium; L. P. Curtis, South Lowell, Kent county, third premium; David Yeiter, South Lowell, Kent county, no premium; John Yeiter, South Lowell, Kent county, Michigan Farmer for one year; Fred. Yeiter, South Lowell, Kent county, no premium; J. M. Sterling, Monroe, Monroe county, no premium.

Class 3.—For apple orchard for profit, without succession, planted not less than five years nor more than ten years, not less than two acres in extent: W. H. Hurlbut, South Haven, Van Buren county, no premium; W. H. Hurlbut, South Haven, Van Buren county, (young orchard), no premium; Joseph Dow, South Haven, Van Buren county, no premium.

Class 4.—For apple orchard for profit, with succession, planted not less than five years nor more than ten years, not less than two acres in extent: E. R. Sherburn, Covert, Van Buren county, diploma.

Class 5.—For apple orchard for profit, without succession, planted not less than one nor more than five years, not less than two acres in extent: J. B. Soule, Fruitport, Ottawa county, diploma; Joseph Gridley, Kalamo, Eaton county, third premium.

Class 7.—For orchard of apple trees twenty-five or more in number, in bearing, planted not less than ten years, with succession, quality, management and cultivation to govern: Joseph Gridley, Kalamo, Eaton county, diploma.

Class 10.—For pear orchard for profit, with succession, planted not less than one nor more than ten years, of not less than one-half acre: Joseph Lannin, South Haven, diploma; D. C. Loveday, South Haven, third premium.

Class 12.—For peach orchard for profit, in bearing, without succession, planted not less than four years, of not less than five acres in extent: J. B. Soule, Fruitport, Ottawa county, diploma.

Class 14.—For peach orchard for profit, in bearing, with succession, planted not less than four years, not less than one acre in extent: J. Dage, Bangor, Van Buren county, diploma; H. J. Linderman, South Haven, second premium; A. T. Pennyman, South Haven, third premium; M. T. Smith, South Haven, no premium.

Class 15.—For peach orchard for profit, with succession, planted not less than one nor more than four years, not less than one acre in extent: J. M. Dean, Grand Rapids, Kent county diploma; J. B. Soule, Fruitport, Ottawa county, second premium; Jerry Bridges, Bangor, Van Buren county, third premium; A. Cooke, South Haven, Van Buren county, no premium; T. W. Bishop, South

Haven, no premium; H. J. Linderman, South Haven, no premium; D. C. Loveday, South Haven, no premium.

Class 18.—For orchard of plum trees, in bearing, with succession, planted not less than four years, and not less than ten trees: C. T. Bryant, South Haven, Van Buren county, diploma.

Class 22.—For vineyard for profit, without succession, planted not less than four years, nor less than one acre. Geo. W. Bruckner, Monroe, diploma; W. C. Sterling, Monroe, second premium.

Class 23.—For vineyard for profit, with succession, planted not less than four years, nor less than one acre: W. J. Wheadon, Kalamazoo, third premium.

Class 24.—For vineyard for profit, with succession, planted not less than one nor more than four years, of not less than one acre in extent: J. M. Sterling, Monroe, second premium.

Class 25.—For vineyard of native grapes, in bearing, with succession, not less than four years planted, nor less than twenty-five vines: Geo. W. Bruckner, Monroe, no premium.

Class 26.—For Concord vineyard: Geo. W. Bruckner, Monroe, diploma; N. E. Smith, Ionia, Ionia county, second premium; Wigglesworth & Histed, South Haven, third premium.

Class 27.—For Delaware vineyard: J. G. Ramsdell, Traverse City, Traverse county (5 years old), diploma; N. E. Smith, Ionia, Ionia county (1 year old), diploma; Wigglesworth & Histed, South Haven, third premium.

It is proper to say here that a very fine Delaware vineyard was entered for premium by N. & C. Chilson, of Battle Creek, but they very modestly withdrew it, as one of the number was appointed on our committee. They have a fine general nursery, and are doing something in greenhouse plants. They found the winter had injured their apple trees, and so cut them off to sound wood at the base, preferring to grow them over again rather than run any risk selling injured stock, and so injure their future trade.

Class 28.—For vineyard for table use, without succession, planted not less than four years, not less than one acre: Geo. W. Bruckner, Monroe, diploma; J. M. Dean, Grand Rapids, second premium; W. C. Starke, Monroe, not examined through mistake.

Class 29.—For vineyard for wine, without succession, planted not less than four years, nor less than one acre: Pointe Aux Peaux Wine Company, Monroe, diploma; Diedrich & Brieshaber, Monroe, third premium.

Class 30.—For small fruit farm for profit, including strawberries, currants, raspberries, and blackberries, and not less than one acre in extent, and planted not less than one year: Merrill & Son, Kalamazoo, withdrawn September 10.

Class 32.—For plat of strawberries not less than one-half acre. L. G. Bragg & Co., Kalamazoo, diploma; Wigglesworth & Histed, South Haven, second premium.

Class 33.—For plat of red or yellow raspberries, not less than one-half acre in extent: Wigglesworth & Histed, South Haven, diploma; L. G. Bragg & Co., Kalamazoo, second premium.

Class 34.—For plat of black cap raspberries, not less than one-half acre in extent: Wigglesworth & Histed, South Haven, diploma; L. G. Bragg & Co., Kalamazoo, second premium.

Class 35.—For plat of blackberries, not less than one-half acre in extent: Wigglesworth & Histed, South Haven, diploma.

Class 44.—For commercial plant house or range of houses: John Suttle, Grand Rapids, diploma; T. I. Renwick, second premium.

Class 45.—For general nursery: I. E. Ilgenfritz & Co., Monroe, diploma; N. P. Husted, Lowell, Kent county, second premium; Reynolds, Lewis & Co., Monroe, third premium; L. G. Bragg & Co., Kalamazoo, honorable mention.

Total number of entries, 61.

After a brief consultation the committee agreed upon the following scale of points. This scale enabled them to examine and record their views of places examined with accuracy and despatch. As we have never met with a scale of points in any reports of this or other State or in any work on horticulture, it may be interesting to put this upon record:

	Apples.	Pears.	Peaches.	Plums.	Grapes.	Small fruits.	Nurseries.
Soil.....	15	20	10	10	15	20	25
Protection.....	5	10	25	10	15	10	10
Market.....	5	10	10	15	10	20	5
Variety and Arrangement.....	15	10	10	10	10	15	25
Culture.....	10	10	10	10	10	5	15
Pruning.....	10	10	10	5	15	15	15
Health and absence of insects.....	20	20	20	20	20	20	20
Fruitfulness.....	5	5	5	5	5	5	---
Test orchard.....							10

The standard for greenhouses was as follows: Cisterns and tanks 10, foundation 10, number and size of rooms 10, glass and setting 5, screens 5, white-washing 5, sash 5, ventilation 5, heating apparatus and economy of fuel 20, arrangements for propagating 10, potting room 5, convenience and taste in arranging 10, protection from winds 5, market 10, best and greatest number of varieties 20, health 15, freedom from insects 15.

It will be noticed that no two sets of these numbers are alike, and none of them sum up just one hundred.

In considering the *soil*, we noticed the nature, condition, depth, subsoil, kind of drainage, preparation, the stumps, stones, hollows, knolls, and adaptation to the kind of fruit upon it. On *protection* we mark that by lakes, trees, altitude, exposure, average and extremes of temperature. On *market* we note the time distance, cost, and convenience. Under *variety and arrangement* we note the best for our climate, or for the particular location visited; great number of varieties, arrangement for ease of picking, packing, and culture; distance apart, vacancies and evenness. Under *culture* we note the kind of culture, depth, when and how fertilized, expense, and tools used. Under *pruning* we note thinning, staking, trellis, how and when grafted, form of trees, and heads. Under *health* and freedom from *insects* we note size, length of shoots or canes, mildew, blight, yellows, stockiness, kinds of insects, methods of destroying, and expense. Under *fruitfulness*, quantity, quality,—past, present, and prospective. The test orchard, or sample orchard or grounds, were thought to be of much value to a nursery, that people about to purchase may see what they like or dislike.

Each member was furnished with a copy of the above standard scale of

points. On visiting each place he takes a blank, upon which he writes a number opposite each standard number. Perfect soil for apples would be 15, if poorer, say 12 or 8. Upon these sheets are often various other marks and comments. All these were finally given to the chairman to average and decide who wins the prizes. Each member makes his own marks without consulting others. Occasionally we compared notes to see who marked highest or lowest.

After such an extreme cold winter it seemed for a while very doubtful whether the committee would have much to do this year; but in some respects things looked better as the season passed along.

The entries made required three weeks of hard work of the committee, who gave their time for this purpose. It was not uncommon for us to arrive at a place or depart from it at 11, 12, or 1 o'clock in the night. When done we departed on the first train, no matter at what time of day or night.

On September 4th we began work at South Haven. This is a new town. Though still abounding in stumps about the suburbs, it is not *wholly* unknown to the fruit men of Michigan or other States. She has even attracted some attention by her fruit at the Vienna World's Fair, as well as at our own National Pomological Convention held this year in Boston. At South Haven we found a thrifty Farmers' Club, the chief interest of which is the discussions in reference to horticulture. It is paying well the members and the neighborhood for all the time thus occupied in consultation. These clubs, rapidly springing up in our State, are one of the most favorable signs of the times.

Most of these South Haven people know how to do things well. Now and then we saw a place in the vicinity belonging to a man not a member; the culture, variety, and quality of fruit and all the surroundings, told the same story—"behind the times." We found an abundance of peaches in the majority of orchards, which were not over two miles from the lake. They were then worth at the orchard over \$2 a basket. The failure of peaches in other parts of the State has caused a rise in land about New Haven. One young man had last year bought a three-acre peach orchard of his brother, paying \$100 an acre. This year he sold the fruit on the trees for \$600. He had expended about \$50 in cultivation and care of trees.

Hon. A. S. Dyckman had an orchard of 30 acres of fine peaches, yielding about 16,000 baskets, 6,000 more than his estimate in the spring. He is at once president and king: *President* of the Pomological Society of the great fruit State, and *king* among our peach-growers. Every man is in luck this year who has a bearing peach orchard. It was a good thing to precede the financial panic.

Raising peaches also has its dark side, even at South Haven. Trees become diseased and die. Insects bore the trunks and sting the fruit, unless the owner is ever vigilant. Those who raise much nice fruit attend to their business. They spare no pains, and do everything well. We saw one fine pear and cherry orchard on a rented place, nearly ruined by the slugs. This place was raising insects to stock the whole community.

We were told of one man who last year took the first prize on peach orchards. In the distance we saw huge piles of dead trees, and many others had been burned. This man had piled earth about his trees in summer, as is often done, to keep away the borers. In autumn he had removed the banks to allow the trees to harden previous to rebanking them before winter. The severe sudden

cold prevented this, and in consequence his fine orchard perished. It took the first prize last year, but was not entered this year.

At evening, they bring down, on spring wagons, their peaches, plums, cherries, or berries, and place them on a boat, well ventilated with cool air. By daylight they are in one of the best markets in the world—Milwaukee or Chicago. This is better for the grower than to live back inland six miles, in the suburbs of either place.

Pears are generally a bountiful crop all along the lake where the trees are taken care of. Grapes are also fine. Small fruits usually light on account of severe dry weather. It seems to us practicable to irrigate small fruits in dry weather, especially about the times of ripening fruit. No doubt if rightly done this would often increase the yield three-fold. Irrigation can be accomplished by windmills and in some places by artesian wells. Apples were light and very wormy, with some exceptions. Peaches, pears, grapes, and small fruits, are usually thoroughly cultivated till about the last of August. Some have worked them later rather than to leave a few unsightly weeds; but late cultivation often induces a late growth which will not ripen enough to endure winter. Among the wonders seen on our trip was an apple orchard 16 years old, owned by L. H. Bailey of South Haven. The soil a deep gravelly loam, with clay subsoil for ten feet or more. This he has heavily manured and plowed every year, generally taking off a good crop of corn, wheat, oats, or potatoes, as well as a bountiful crop of apples. Occasionally he seeds down, but plows under as soon as the grass makes a good growth. The trees are all top-grafted, with not a tree missing. Such a bountiful crop of fine apples is rarely seen east or west, in Michigan or out of it. The greatest yield this year was thirty-one bushels to a tree. This was a Baldwin.

There were 450 trees 40 feet apart in his premium orchard, yielding this year 1,200 bushels; last year, 300 bushels; year before, 800 bushels. There are some peach trees between the apple trees. This year the apples sold for three dollars per barrel to go to Mississippi. His apples are all nicely colored on account of the open heads of his trees. They are allowed to branch out about five feet from the ground. We never saw an orchard in which the centers or tops of the trees were so much pruned.

The codling moths or worms are caught as they leave the apples, by old cloths held in the crotches of the trees by a brick or stone. These are examined every week, and the enemy killed. The trees at the Agricultural College have been bandaged for several years to catch the moths; but the neighbors have not yet all been induced to do this, and so insects do not diminish. Mr. Bailey's neighbors all hunt moths in their orchards, and, as a result, apples are quite free from worms. While speaking of moths, we saw one man, Mr. Husted of Lowell, who puts on a band of one thickness of paper. This catches the moths. The woodpeckers peck open the paper and remove them, generally all of them. When the paper is torn into shreds he puts on another.

Mr. Bailey, the owner of the orchard spoken of, has a fine farm. He bought it in early times of the government, then went to see it. He soon sold it again, saying no one but Indians would ever live there. He afterwards bought it back at a large advance. As Mr. Bailey has had considerable experience as a successful grower of apples, we cannot do better than to quote parts of his letter to the chairman of this committee. He writes:

"I have had orders for more apples than were raised in South Haven; orders

from Minnesota, Iowa, Illinois, and elsewhere. I have never sold a bushel of number one apples for less than a dollar. Nearly every order called for *red* apples. I had one order for Wageners, two for Spitzenbergs, and not one for Swaar; but all wanted Baldwins, Spys, and Greenings. The Baldwin has one fault. Those exposed to the sun have bitter, dry, rotten specks under the skin. The Stark, I think, will be the leading winter variety. The Lawyer is first-rate. My fall apples sold for the same price as my winter apples."

Some of the reasons for Mr. Bailey's success seem to be a good strong soil, thorough culture, plenty of manure with crops which prevent too rank growth, trimming to let in the light, fighting insects, and good neighbors who do likewise. With all the rest, we must note the health and fruitfulness of his trees. Shall we not attribute a part of this to the mode of grafting in the top? We have something yet to learn. We are not by any means sure that any of us yet know the best mode of propagating apples.

Mr. Bailey's place is seventy-three feet above the lake and one mile back. The coldest time observed last winter was sixteen degrees below zero. Some fault was found with the varieties and arrangement in this orchard.

Not far away was another apple orchard, entered in class three by W. H. Hurlburt. Some of his trees, seven to ten years old, had been cultivated for a few years, then seeded down. A large pile of sawdust was placed a foot deep about each tree. The owner had seeded this orchard to remain so, as he was fully satisfied this is the best way. The best orchard he ever saw was seeded to grass and his should be also. The trees were making a slow growth, not bearing very well, and had leaves of a yellow, sickly color. If the committee judged rightly, this orchard, as now treated, will soon be stunted.

We saw some orchards of various ages up to 12 or 15 years, which were seeded down to clover or grasses. We saw *none* which had been seeded for the last three years which looked well or bore well.

Whether it is better to leave grass or to leave no grass growing in an orchard can be very easily determined by noticing the good or bad color of leaves, the yield and quality of fruit, and the length of the upper twigs, which ought to be eight to fourteen inches long, if doing well. It is some like judging whether sheep are doing well or not. To determine this point, look at the sheep and not at the pasture; as long as they are plump and fat they are all right.

In a snow storm of November 26, a part of us visited Joseph Gridley of Kalamo, in the western part of Eaton county. This farm is on a slight elevation, with forests not far off to the southwest and northwest. The soil is dark gravelly loam,—a strong soil, much like that called Burr Oak land. Last winter the thermometer was only seen at 20 degrees below zero. After studying the markets east, west, and south, and after observing what trees do best in his neighborhood, he planted, in the spring of 1862, about 1,500 two-years-old apple trees of the following varieties: 400 Ben. Davis, 300 Baldwin, 300 Red Canada, 300 Wagener, 100 Grimes' Golden, 100 of several others, as Wine Sap, Prior's Red Russet, Dutchess of Oldenburg. They were set in a wheat field, and we scarce need say made but little growth the first year. This season, when the land was planted to corn, the trees did better. Quite a number, perhaps two-fifths of the trees, were injured, some of them killed. The trees were set 20 feet apart in true quincunx order, each at an equal distance from six others. This spring he selected 160 Red Canada from Bragg's nursery, Kalamazoo, and set them well. Nearly all died this summer. Mr. Gridley told the committee that he

went to the nursery himself and dug up the trees at his own risk, without any assurance from the proprietors that they were worth setting.

In that part of the country Mr. Gridley says the Ben Davis yields better than the Baldwin. They are even, beautiful, and open well at the end of a long journey. It sells better than the Baldwin.

But his *old* orchard was of most interest to the members of the committee. Mr. Gridley was a pioneer in that part of Eaton county. He went into the woods 26 years ago, cleared a farm, and in six years planted 100 or more apple trees of the following varieties, which were then most prominent: Baldwin, Wagener, Northern Spy, Esopus Spitzenberg, Rhode Island Greening, Hubbardston Nonsuch, Yellow Bellflower, Golden Russet, Roxbury Russet, Fallawater, Newtown Pippin, Black Gillflower, Westfield Seek-no-further, Hartford Sweet, Early Harvest, Striped Harvest, Red Astrachan, Early Strawberry, Sweet Bough, Maiden's Blush, Summer Queen, Colvert, Fameuse, Hawley, Fall Pippin, Ribston's Pippin, Rambo, Golden Sweet, Gravenstein, Porter, Peck's Pleasant. Here were thirty-one prominent apples. In early days this orchard was known for miles around. Trees 20 years old, of so many choice varieties, in such a new country, are quite remarkable. The orchard has been of great advantage to its owner and his neighbors as a test orchard, helping them in making good selections for younger orchards. The Fameuse does well, and he considers it the best apple in existence. Westfield Seek-no-further does well; the Spitzenberg does poorly; Greening also; Bellflower fair; Baldwin trees all healthy, but the apples abound in bitter spots near the skin. The Newtown Pippin is a failure; he is grafting over the Colvert; the Fall Pippin is shabby; Rambo not popular; Porter a success; Peck's Pleasant doesn't bear much,—is not a success in that county. The trees were planted 20 feet apart in squares; the trunks look healthy, as do also the upper limbs; the lower limbs have been injured by the crowding of trees. He does not manure or cultivate at all now; nothing grows under the trees except a little sickly grass and a few weeds. Most cherries have done well this year. He had over a bushel of peaches on six old neglected trees. He has not failed to raise some peaches but twice since being there.

The most popular varieties of winter apples seem to be Baldwin, Rhode Island Greening, Northern Spy, Golden Russet, Wagener, King, Red Canada, Ben Davis, Jonathan, Peck's Pleasant. Several others are rapidly gaining favor where they have been tried.

The most popular varieties of pears were Flemish Beauty, Bartlett, Louise Bonne de Jersey, and Beurre d'Anjou.

The finest pear orchard (though not entered for premium) seen was on the farm of Mr. Parmelee, at Old Mission, Traverse City.

The four-year-old peach orchard of J. B. Soule, Fruitport, contained 860 trees, with but two or three vacancies. They are all Early Crawfords. The trees have a strong solid subsoil. The owner cultivates the soil thoroughly until time to sow buckwheat, then it is sown and the crop plowed under. He was intending to mow a portion this year, and leave it on the ground as a mulch.

In Class 14 the diploma is awarded to J. Dage, Bangor, Van Buren county, about twelve miles back from the lake. He has about 400 trees set on three acres of land one rod apart. They have been set nine years, and have borne large crops for the previous five years in succession. The owner said the

yield was 5,000 baskets in 1871, the same in 1872. There were but few peaches this year. Though set too closely, the trees looked as though they were good for some years yet.

In Class 15 J. M. Dean, Grand Rapids, wins the diploma against six competitors.

On account of the extreme cold last winter we were not expecting to see much of interest about Grand Rapids. Mr. J. M. Dean gave us a fast ride of a mile or so north of the town, going up hill,—up all the way till we were on a high plateau, very high for the Southern Peninsula. We had passed many injured trees, but here we found a healthy, sound peach orchard, though not bearing this year. There were four acres, nearly 800 trees, and not one missing. They are exposed to a long sweep of wind, without protection from trees. They are four years old, and last season bore forty-five dollars' worth of fruit—none this year. The soil is a heavy sandy loam, with clay bottom. The varieties are in about the following proportion: Hale's Early, 50; Early York, 100; Crawford's Early and Late, each 200; Old Mixon, 50; Troth's Early, 50; Smock, 100, with a few other varieties. Omitting some of the Early York and adding Barnard, Hill's Chili, Wheeler's Early, Jacques' Rareripe, the selection was thought to be very good. The orchard was well cultivated till the first of August. There was no sign of any insects, not even a trace of peach-borers. Mr. Dean said he had never been able to find any. Mr. Dean also showed a four-year-old vineyard of one acre. Sales this year \$350, all at home.

In this class, one of the committee who visited J. B. Soule, writes on his paper, "a wonderfully perfect yearling peach orchard." It grades much higher than do several orchards in other classes which receive the diploma of this society. The same can be said of a three-year-old orchard of Jerry Bridges, of Bangor. It is very hard to beat. There are 600 beautiful healthy trees, with two or three vacancies. They bore ten bushels last year—none this. The competition was close in this class.

There was but one entry of plum orchards, which is a little surprising to the committee, since plums can be so easily raised in many places. The entry was made by C. T. Bryant, South Haven, consisting of Bradshaw, Lombard, and Yellow Egg. He had 50 fine bearing dwarf pear trees, worthy of honorable mention. They were five years old.

If any one thinks we are making too much of the Van Buren county people, he must remember that considerable more than a third of the entries were made in that county. This includes all the orchards of peaches, plums, many of the apples, and a majority of the small fruits, with a share of the grapes. This is not as it should be, since we know that many other portions of the State could do equally well, did the people only try.

On Tuesday, September 23d, after the grand State Fair, we resumed our work on the orchard, beginning at Kalamazoo. It is fair to say that the grapes at South Haven were abundant and looked well, but they were not then ripe. At Kalamazoo we found Col. Wheaton's vineyard in fine condition. He had three acres,—two of Concords, one-half acre of Delaware, and one-half acre of Hartford Prolific. The crop he thought was injured 33 per cent by the hard winter and this dry summer; still he has on this four-year-old vineyard ten tons of grapes.

The Colonel's vineyard is on a high elevation. By his method of pruning the grapes are produced at a considerable distance from the roots instead of near the ground.

L. G. Bragg & Co. entered their general nursery. They have a good variety of nice soil for various purposes. Their chief protection from winter lies in greater elevation; not from any open water or wind-breaks.

They have a beautiful spot in preparation for ornamental grounds and test orchard, near which is an excellent packing establishment. They have a very large stock of fine evergreens, mountain ash, and some other ornamental stock. The quantity of ornamental stock is not in very good proportion; they are lacking in some common kinds, and in good sized trees of many varieties. They keep a general variety of trees of the large fruits, though they lack a good assortment of salable cherries and pears. This will soon be remedied if we judge from the young trees coming on. They have a good market, and nice tools to economize in labor. They claim to have discovered that buds from year-old peach trees are best for budding stock; that five times as many buds grow as when taken from bearing trees. They have experimented largely on dibbles, and have decided that the best are steel-pointed, being $1\frac{3}{4}$ inches in diameter at the large end, eight inches long, besides having a light handle like a shovel. They also have a nice cultivator of their own invention, consisting of a very small plow, a rolling coulter and back, to the left of this a single small shovel plow, all supported on one frame. This enables the workman to run close to the row. They use and like the new Deltoid hoe.

N. P. Husted, of Lowell, shows his general nursery, situated on high land where two ridges cross, 250 feet above the river, six miles away. The atmospheric drainage (a new term) seems good, and keeps off the frost. They have a fine soil and an extensive establishment, and exhibit much tact and energy. Here are shown also by their neighbors, quite a number of productive apple orchards. The size of their nurseries and variety of plants for sale took some of us much by surprise. The whole establishment is very symmetrical, not lacking in any very essential element. They have a large amount and variety of ornamental shrubbery and herbaceous plants, especially of weeping willows, mountain ash, and horse-chestnuts. Everything was in excellent order. They had all the best tools and contrivances found in any similar nurseries. We cannot speak too highly of their care in fruiting samples of all the kinds of fruit trees offered for sale. We hope the ornamental trees will also receive similar attention. The extreme dry weather at the Lowell Nurseries injured their young stock planted this year. The same should be said of the other nurseries entered at Kalamazoo and Monroe.

What can be expected of Ionia, a new interior county, so far north and so far from the lakes? Certainly she must have frozen up last winter. Mr. N. E. Smith takes us away up 190 feet above the river, a little out of town, passing by the frozen quince bushes and injured apple-trees, to his place, where the land slopes in every direction, and is open to the winds. He shows grapes overbearing with nice fruit, and some vines not touched by the frost till October 6th. He exhibits apples on sound trees; thrifty peach-trees promising well for next year, and quinces loaded with yellow fruit. He pointed to six large sweet cherry-trees which had made a fine growth, unhurt last winter, that bore a large crop of fruit. He gives good culture on good soil, and reaps his reward as he goes along. He showed us the best year old Delawares we ever saw. His cuttings of Delawares were also remarkably successful for this year, and excelled the Concords planted near them. His Concord vineyard was overbearing. It was well managed in every other respect.

It was hard to credit his account of the temperature last winter marked by

his thermometer. It only reached 18° below zero, while others in the valley, less than a mile away, went down to 37° below. We repeated the advice often given by his friends that his whole farm on the hill should, by all means, be set to fruit.

We went to Traverse City, October 6th. Here we were placed in an embarrassing position, by not being able to decide which Delaware vineyard was best, that of J. G. Ramsdell or N. E. Smith, of Ionia. They were both too good for a second premium, so we gave them both diplomas. The one at Traverse is five years old, and bearing a full crop. The vines were remarkably stout for Delawares.

The village and vicinity is not prepossessing to a man accustomed to farming. There is sand about the town and rolling hills in the distance. Much of the way along the new railroad is very rough, but every traveller must know that it is not safe to judge of a country by what he sees from the car window.

The first thing on a bright morning was to go up about 350 or 400 feet above the bay and take a general survey of the country. We could easily see Northport, 32 miles away, and beyond the open water. The autumn foliage of maples, beeches, poplars, ashes, elms, pines, and spruces, spread all over the valleys and rolling hills, presented a picture grand and beautiful. Such a picture we never expected to see in Michigan.

In travelling by team nearly fifty miles, we saw much first-rate soil, capable of producing fine crops of wheat, dent corn, apples, berries, or almost any crop of farm, orchard, or garden, usually raised in the State. They had just had the first frost of the season, unusually early, nipping some of the tender vegetation in exposed places. Frequently there is no frost before the end of October. We saw peaches in many places, and some quinces, but both had suffered more or less last winter. Unquestionably this is the place to raise fine winter apples, remarkable for their high color and long keeping. They look as though they were painted; Greenings have a red cheek. Mr. Parmelee, one of the leading fruit men there, tells of a barrel of Northern Spy opened the 4th of July, which were every one sound and crisp. Grapes keep long and well.

There are quite a number of large old apple-trees raised by the Indians. These are nearly all sound and healthy, but insects and weeds are there, and beginning to show their capacity for increasing.

Snow falls early, but the open water has allowed frost to freeze the soil. The snow comes to stay till spring, or till warm weather. There are two seasons, summer and winter. Beets and celery and potatoes may be dug at any time by taking off the snow. As potatoes are not winter-killed they become a weed, and remain for years in a meadow or cultivated field.

On the peninsula we saw a large number of pear trees, set four years, which were the nearest perfect in growth and health of any we have ever found. Many apple orchards have been recently set.

Grand Traverse must soon become a popular summer resort. We must give up our old notions about cold at the north, and a barren land in the northern counties. At their Union Fair was the finest display of winter fruit we ever saw or ever expect to see. We wonder why there was only one orchard entered in that county. Friends, do not be so modest again.

At Grand Rapids we examined the commercial plant-houses of Renwick and of Suttle. Both do a growing business in cut flowers, as well as in the sale of plants. In this thrifty, Chicago-like town, it is the fashion to trim churches with vines and flowers. Mr. Renwick has a contract to decorate three by the

year. It is a good custom. These houses have a very good variety of nice, healthy stock. The houses are cheap. Mr. Renwick claims something extra for his curtains on rollers to shade and keep in the heat. In five minutes he can screen the whole or remove it. He also has patented an arrangement to cause a good draught in very long flues. Mr. Suttle does a good business with his vegetable garden, getting two or three crops a year on the same land.

We have all heard of the great fruit-belt of Michigan, along the western lake, but who ever heard of Monroe as a place to grow fruit? There we found luscious pears and apples, bright, sound, rich, and beautiful. There were some of the oldest apple-trees and largest we ever saw. We saw now and then some wonderful pear-trees,—seedlings planted many years ago by the early French settlers. One measured over six feet in circumference six feet from the ground. They bear every year a good crop of early fruit. Unlike most pears, they must ripen on the tree to be good. They then perish so soon that they cannot be shipped any distance. The trees are very tall, so to save the fruit as it falls, straw is spread under the trees. A tree generally returns \$30 a year in fruit.

There were over twenty vineyards loaded with the best grapes we saw on our trip. The roots on the vines feed on limestone and marl not far below the surface. This is particularly adapted for producing Concords in perfection. Let no one condemn this grape till he has tested those from Monroe. Most of their grapes are made into wine, thus producing a home market. They prefer to sell them for wine because they leave no culls. We were shown two establishments for making wine, with all arrangements in perfection. J. M. Sterling, Geo. W. Bruckner, I. E. Ingenfritz, H. Reynolds, and others were patient and attentive to the wishes of the committee. They met us on leaving the depot, each with a well-loaded basket.

The islands and points are well adapted to grapes. There is no frost till the end of October or middle of November. We saw a very few curculio, some thrips, and a little mildew, and a few vines killed by the winter and want of drainage. At the Pointe Aux Peaux vineyards we saw Delawares of a very remarkable growth, with much large fruit of fine flavor. Catawba vines, which were not artificially protected or taken from the trellis during winter, well loaded with fruit which had every prospect of thoroughly ripening.

Geo. W. Bruckner, it will be noticed, won three diplomas this year on vineyards. Glory enough for one man in a single season.

Yusef in Detroit Free Press says: "Arrived at Pointe Aux Peaux the committee were received by Rev. Dr. Mattoon, Joseph R. Bennett, W. A. Noble, Gen. George Spalding, M. D. Hamilton of the Commercial, J. W. Reisig, and J. L. Knapp, and escorted to the wine-house and cellars attached to the vineyard. The *modus operandi* of wine-making was explained, and the scrupulous cleanliness of everything in connection with the establishment admirably noted. In the cellars the great wine pipes and tuns of a capacity of five hundred gallons each excited the wonder of the spectators. The qualities of native wines made at the Pointe Aux Peaux vineyards, comprising Catawba, Delaware, Ives' Seedling, and other varieties of still wines, were tested by a portion of the visitors and committeemen and pronounced superb.

"The vineyard itself was next visited. It comprises twelve acres of land at the very edge of the lake which encircles it on three sides, the projecting Pointe Aux Peaux being in fact a peninsula. This contiguity to the lake exerts a wonderful effect on the temperature, and gives to the vineyard certain immunity from injurious frosts or winter's cold. The water opposite is open

all winter, as directly in front of the location is the continuance of the channel of the Detroit river, whose rapid current clears the shore of ice. The soil does not differ materially from that adjacent to Monroe City, lying as it does just above the limestone formation found invaluable to the proper growth of the grape. The individual members of the committee having each noted his opinion, it was announced by Professor Beal, the chairman, that in all the particulars of grading the Pointe Aux Peaux vineyard came fully up to the standard, and consequently the first prize would be awarded to it. That is as much as to say that the Pointe Aux Peaux vineyard was absolutely perfect. Certainly no one could pass through it and come to any other conclusion."

But this is not half of what we saw in Monroe. There are two very extensive nurseries, entered by Ilgenfritz & Co., and Reynolds, Lewis & Co., each claiming to cover two or three hundred acres. We saw here block after block of trees in straight rows, so we could trace them with slight interruption over a mile.

S. Q. Lent in Michigan Farmer says: "Here are found long rows of Red Canadas worked into the tops of rapid growing trees, looking healthy and vigorous. I. E. Ilgenfritz & Co. have a portion of their nursery grounds lying alongside of the Reynolds nursery, and the whole to a passer-by looks like one immense nursery farm. We were glad to see this pleasant feeling existing between the two firms, indicated more especially by having no division fence to separate their domains. Both of the firms have fine specimen orchards, but neither have as fine specimen trees of the more popular ornamentals as I would enjoy seeing.

"Every acre is thoroughly tile-drained at a cost of over \$50 per acre. It is heavy, some of it lumpy, but strong and rich and sure to produce well. They have a good market, good tools, and a good variety of good stock. There are a few slugs, caterpillars, and white grubs, but no cut-worms."

S. Q. Lent again says: "In Mr. Ilgenfritz's nursery one of the most interesting features was this season's planting of apple stock. Long rows stretching for nearly half a mile, as straight as a compass could line them, of even, thrifty growth, promising a magnificent block of salable trees in two years. We cannot speak too highly of the thorough cultivation practiced by these two firms. It would be a grand thing for some of our farmers to visit these establishments, if for no other purpose than to learn how to pursue a thorough system of drainage and cultivation.

"It was a rich treat to converse with these Monroe men. They are men who have learned what they know of fruit and fruit trees in the school of personal experience, and know whereof they affirm, and withal they are far from being arrogant, but exhibit modesty and culture, and readiness to impart information without the least bit of ostentatious display.

"I feel such confidence in our Michigan nurserymen that I think I am warranted in saying they are too jealous of their reputation to place poor or injured stock upon the market. They all have some of as fine stock as can be grown anywhere, and by selling this, and only this, they can establish a name that will bring them abundant success, and make us all proud to advertise them as our own. As a committee we feel that just as good nursery stock can be grown in Michigan as any other State, and we feel proud of the men who have, through economy and study, acquired the positions they now occupy. We feel justified in saying to the farmers of Michigan, 'Do not patronize unreliable fruit-tree agents from abroad as long as you can, by a very little

expense, procure trees just such as you desire by going to your own State nurserymen.”

The four nurseries visited at Kalamazoo, Lowell, and Monroe must contain over 800 acres of land, all well managed by men who understand their business. They have the best varieties and best tools. They are wide awake and up to the times. They have all made good names and considerable money, and are trying to increase both of these. The cold winter injured many of their trees, but we trust they will not sell them. They can supply plenty that are sound and healthy.

No entries were made for ornamental grounds. We like to encourage the ornamenting of grounds, not with lavish outlay, but with good economy and good taste. A little labor upon a house or yard in just this way will produce a pleasing effect. Money judiciously expended in ornamenting home grounds will pay a large return in comfort and satisfaction of the owner and his friends. If he wish to sell the place, it is money well invested. “More attention to this subject is one of the greatest wants of our thrifty Western farmers.”

The lesson learned on account of last winter's cold is to pick your location on high land or by deep, open water, reject tenderest varieties of fruits, and contrive new methods for artificial protection. These spots favorable for tender fruits are dotted here and there in nearly every portion of our State.

SUGGESTION OF SECRETARY AND ORCHARD COMMITTEE OF THREE MEN.

In many of these places visited, the people seemed dissatisfied with our short stay. We could not do otherwise. Three weeks of time in a busy season of the year is a good deal for business men to give in hard work traveling over the State. We were generously treated everywhere. In a few instances it was difficult to make men understand that we were giving our time to this subject. They supposed we were well paid for our work, and perhaps were on some tour for speculating at the expense of “the honest farmer.”

We hope in future that entries will be made in other portions of the State. As before mentioned, we know there are many fine orchards not seen by the committee. A visit from an orchard committee must be a good advertisement for the fruit interests of any locality.

In conclusion, we must say that the members of the committee were unanimous in their decisions to a remarkable degree. Although the trip among the orchards and vineyards, and gardens of Michigan was made at considerable sacrifice, we feel amply paid in doing this much to encourage the interest of horticulture among our people. We have made and renewed many pleasant acquaintances; in distant parts of the State we have formed an attachment for each other long to be remembered.

PROF. W. J. BEAL, Chairman, Lansing.
W. H. GREGORY, Pine Grove, Van Buren Co.
CHAS. W. GARFIELD, Grand Rapids.
C. N. MERRIMAN, Grand Rapids.
N. CHILSON, Battle Creek.
E. A. McCLAVE, Benton Harbor.

ORCHARDS AND VINEYARDS OF MICHIGAN.

NUMBER ONE.

BY S. Q. LENT.

It is very difficult to obtain a committee of competent men to view the orchards, vineyards, and nurseries of the State, who are willing to spend two or three weeks of time in a hurrying season, and incur the necessary expense, without hope of any compensation save the satisfaction of having accomplished a duty. Of the appointed committee but three were able to do work, and the vacancies were filled by appointment. They now stand as follows: Prof. Beal, Chairman, Lansing; Wm. H. Gregory, Pine Grove; Chas. N. Merriman, Grand Rapids; N. Chilson, Battle Creek; M. L. McClave, Benton Harbor; Chas. W. Garfield, Grand Rapids. Owing to the pomological work to be accomplished in connection with the State Fair, and the positive necessity that several members have the previous week to prepare for it and perform other duties, it was decided to view the South Haven entries, then drop the matter until the week succeeding the fair, when the following route has been decided upon as the best: The committee will meet in Kalamazoo, attend the entries there; then proceed to Battle Creek, Pine Grove, Grand Haven, Fruitport, Grand Rapids, Lowell, Monroe, and Kalamo, probably leaving Grand Traverse until the October meeting. This will give close connections and insure rapid and consecutive work.

We started from South Haven village at 3 o'clock Thursday P. M., and this Friday night we count up twenty entries visited, viewed, and graded.

The committee have adopted a regular system of grading, so that each individual passes upon each orchard without advising with the other members. The average result of all the decisions establishes the standing of an individual entry. The points may be briefly stated:

First.—Soil. This includes quality, depth, drainage, and texture, taking also into account the subsoil and method of drainage.

Second.—Protection, which looks at wind-breaks, open lake elevation, and exposure generally.

Third.—Market. Affected by the fact of home consumption being sufficient to consume the product, and the distance to place of sale; if shipped, the advantages of shipping quickly, prices of transportation and regularity of the times when shipments can be made.

Fourth.—Variety and arrangement, combining the selection of sorts adapted to the wants of market and a close succession of fruit, without a flood of differ-

ent kinds at the same season nor long intervals with none to ship. This point applies more particularly to the other fruits than apples, as the latter can be preserved in a green state for so long a time. The arrangement applies to the manner in which the orchard is set as to convenience of manipulating the fruit.

Fifth.—Culture. Which means cultivation, sorts of implements, and methods of using them; fertilizers, their quantity and method of management.

Sixth.—Pruning, as to time and method employed.

Seventh.—Health and insects. This point looks at the general vigor of the growth and the plan of maintaining it; the kind of insects that are troublesome, and the ways employed to check their ravages and exterminate them.

Eighth.—Fruitfulness. This point in the scale seems to be rather a result of judicious management covered by the other seven points. Still, as this exhibited the ultimatum which all orchardists seek to reach, it was thought eminently proper it should occupy a place in the list.

The number which corresponds to the different classes entered varies a great deal. For instance, soil for grapes, small fruits, and apples, is given 15 points, for peaches only 10, while for pears it is made 20, and for nursery stock it is allowed 25. Protection is given five points in apples and nursery stock, 10 in small fruits, and 25 for peaches. This grading is arranged in accordance with the comparative importance which the divisions of the scale have to the class entered.

With this brief statement of the plan we are pursuing, I will close this communication. Next week, if you desire, I will give you a statement more in detail of the work we are accomplishing; giving the new ideas brought before the committee in their work, an epitome of the conversations on the route, together with some remarks as to the pomological value of the localities we visit.

The committee indulge in the hope that they can notify in advance the parties who have entries as to the time of their proposed visit, and that they will be met promptly and assisted in their work. The entries were made so hurriedly that in many cases the membership was neglected, so that certificates will be issued as the committee progresses.

NUMBER TWO.

Agreeable to promise, I send you an account more in detail of the work performed by the Orchard Committee up to the date of this article, and will in subsequent communications follow the committee through their entire trip.

Our first work was in Van Buren county, in the immediate vicinity of South Haven. Here were thirty entries, and so far as possible, the committee visited in a body the orchards and vineyards.

Messrs. Wigglesworth & Histed entered raspberry, blackberry, and strawberry lots, as well as two vineyards. The berry patches were upon a deep, rich and loamy soil, containing a large amount of vegetable matter. The only objection the committee found with the soil was the want of drainage; twelve hours after a rain the surface was very soft and muddy. In varieties of strawberries there had been but little attention paid to succession, the field consisting mostly of the Wilson's and Triomphe de Gand. The blackberries were looking finely, but had not borne an extravagant crop because of late cultivation

last autumn. The South Haven people, desirous of exhibiting clean places to the committee last season, did a great deal of cultivating and hoeing rather late, causing continued growth which did not thoroughly mature. The excessive winter injured this spongy growth, thus in a measure shortening this year's crop of fruit. Mr. Bidwell's peach orchard, he estimated, would have borne him from \$600 to \$1,000 worth of fruit had it not been for late cultivation. The result of this experience is that we do not find the orchards without a weed or tuft of grass, as was the case last year.

The variety of Black Caps on Wigglesworth's premises was Mammoth Cluster, which ranks very high in productiveness. The raspberries were Clark's and Philadelphias. Some objection having been made to the varieties, the proprietors gave their returns from a half-acre, which were eminently satisfactory. The price of berries was not at any time less than 20 cents, and the majority of the crop netted 25 cents per quart.

The vineyards were laden with fruit, and exhibited a good growth of wood, but there were several vacancies in the rows occasioned by severe cold. The trellises were simple horizontal frames for the Delawares, while a modification of the staking method had been adopted in the Concord vineyard. The soil in the vineyards was excellent, but thorough underdraining would render it more valuable.

In Class 14—peach orchards four years old and over—were several entries. A. T. Penniman's is situated on the lake border, and is protected by a wind-break on the north, south and west. This orchard was marked very high by all members of the committee, the soil, protection, varieties, pruning and general health taking high rank. In this matter of protection, however, there is a diversity of opinion as to what might constitute perfect protection. After conversing with the most intelligent fruit culturists, your correspondent has decided that a heavy belt of timber lying between the direction of prevailing winds and the orchard is more a detriment than a protection. But a thin belt of woods that will temper the force of wind without entirely checking it is the most desirable. The reason is patent to all.

Harvey J. Linderman entered his four-year-old orchard, the crop of which he has sold for \$600 on the tree. The amount of ground is but three acres, so it is netting him a nice little income. The principal objection to this orchard lay in its lack of protection. The committee do not take it upon them to decide for others what is best, but from the fact that several trees in an orchard or a nursery have been winter-killed is testimony showing that there is too much exposure of some sort. The varieties and arrangement ranked very high, and culture seemed quite perfect, while the absence of borers testified to the care he had given to remove noxious insects.

Mr. M. F. Smith's orchard was older, but exhibited the results of fine culture and care. The committee did not see the proprietor, and hence had to use their own judgment in regard to varieties and arrangement. There scarcely seemed to have been sufficient care in obtaining a succession of varieties. There were some crotches in the trees which are quite objectionable, still difficult to avoid occasionally in pruning. There was a goodly amount of fruit on the trees, still far from being a full crop.

In Class 15, containing three-year-old peach orchards, we found some fine entries. Mr. Linderman's, which joined his older orchard, would take the same rank perhaps, save in the single item varieties. We have to judge of an orchard without its connections, hence if it is made up almost of two varieties

it will rank low in this particular; however, it is but justice to state that this orchard in connection with the older one, in the matter of varieties and arrangement would receive very high grading.

A little orchard of I. W. Bishop's comes in competition with this, and between the two there are only slight differences. In the Bishop orchard not a tree was missing, and it had received constant and particular care, still an occasional borer that had been overlooked remained.

The Cook orchard was not pleasing to us; there was an evident want of care, and the management of varieties could be materially improved. In culture there was neglect, yet I am not disposed to criticise this too freely, because the orchards which had received the least cultivation last year came through the winter in the best shape.

A small orchard set last spring by D. C. Loveday we visited. There was not a vacancy, but the pruning had been neglected. The best orchardist forms his trees from the beginning with care, not waiting until the employment of a saw becomes a necessity. A pear orchard upon the same premises looked thrifty, but the weeds were so numerous and so seedy that culture in its application should be certainly modified by the adjective, neglected. In matter of insects too, nearly every pear had a worm in it, which rendered a very fair crop of fruit nearly worthless. At least one-third of the crop lay on the ground, the result of codling moth.

The apple orchards deserve abundant mention. The young one of Joseph Dow was marked low in culture, pruning and health; but the orchard of L. H. Bailey was a model of its kind. We do not wish to praise Mr. Bailey too much or he will think we are attempting to repay his generous hospitality by the use of printers' ink. However, I feel it both just and discreet to say that the culture, pruning, and fruitfulness were perfect. This orchard is the result of ten years of excellent care by a man who understands his business. He crops his orchard every year, and does not fear to continue it as long as he is able to return pay for the crop each winter in abundant manure. He practices high culture and hard cropping, thus deriving a good income and keeping his land in good heart. The committee estimated a single Spy tree to be laden with at least 12 or 14 barrels of apples and a large number of the trees would average nine barrels.

Mr. Bailey believes in open heads, so that the fruit may receive abundant sunlight to color the fruit. His aim is to have a thousand apple trees in perfect bearing. We wish him success.

The orchard of A. R. Sherburne is younger than the Bailey orchard, but has received most careful management. It contains six hundred bearing trees, straight, thrifty, well-pruned, and clean-bodied. If we had not found some borers and lots of codling moths we might have taken this as a model orchard in its class. The varieties are mostly good—Baldwin, Greening, Spitzenberg, Northern Spy, Rubicon, King, Swaar, and Golden Russet. The soil is thoroughly underdrained. Why men should desire to sell orchards in the care of which they have devoted so much thought and attention is a mystery to at least one member of the committee.

NUMBER THREE.

This question of protection is one upon which the orchard committee have held several animated discussions. There is something anomalous and occult in the fact that many of the most exposed situations have proved to be, during the past winter, the most thoroughly protected, taking for data the conditions of orcharding. A single orchard that came under our notice having woodland surroundings on the three most exposed sides, had received more material injury from the cold winter than others upon the open heights of ground. A thin belt of timber, which allows a free circulation of air and still breaks the force of the highest winds, *seems* to be a valuable element in protection; but from our experience in this season's trip, even this we would scarcely recommend. One fact is patent, that a large lake, or small ones fed by springs, or even rivers from which fog arises and spreads over the adjoining country, are a protection from late frosts in spring and early frosts in autumn. We have found, up to the date of this writing, October 10th, very little evil effect from frosts throughout the State. There has been no frost on Spring Lake, at Monroe, Jackson, or Battle Creek, and they do not anticipate any on Traverse Peninsula for some weeks I suppose. But to the work of the committee. Two orchards yet remain in Van Buren county. The Dage orchard occupies about three acres, containing 1,000 trees in good standing. It has borne five consecutive heavy crops, but this season has no fruit. The aggregate yield for 1871-2 was 10,000 baskets. Trees are all vigorous, and will have a heavy crop next season if buds are safe data. The Bridges orchard, lying near, is three years old, thrifty and promising, and actually bore early and late Crawford peaches the next year after planting. These orchards are in Arlington township, outside of what is popularly termed the peach belt, still they claim with good reason to be in an uncommonly favorable position for the growth of the peach.

SPRING LAKE.

The committee's reporter was criticised pretty "lively" for some remarks made last season upon the quality of the soil at Spring Lake, which were taken as derogatory to the best interests of that locality. We humbly bow to these good people, and beg leave to say that we will retract nothing, but wish to supplement the report of last season with that which will honestly compliment their locality. The orchards entered by J. B. Soule, situated on the east border of Spring Lake, were not upon a blowing sand, did not lack in culture, and the land contained manurial elements in abundance. Yet better than anything else we could say, the orchards have a good bottom, being underlaid by a solid clay subsoil into which the trees firmly strike root and receive abundant moisture to support a healthy circulation and secure a thrifty growth. Two of Mr. Soule's orchards will undoubtedly receive first premiums, and the third one grades very high. One method of fertilizing employed here is worthy of notice. The land in the orchard is thoroughly cultivated until time to sow buckwheat, then it is sown and the crop plowed under. Mr. Soule informed us that he intended to experiment a little with a portion of his yearling peach orchard, by mowing the buckwheat and using it as a mulching. It will thus serve the double purpose of a fertilizer and to catch and retain the snow about the trees.

GRAND RAPIDS.

At this point the committee were conveyed to a high point of land north of the city, where Mr. J. M. Dean presented his entries, a fine peach orchard and

vineyard. The orchard would have borne this season for the first time had it not been for the excessive winter. As it is, however, it exhibits little effect from the cold, having been carefully pruned, and *not a single tree was winter-killed*. The wood is well ripened, and well set with fruit buds.

The praiseworthy feature of the vineyard is its admirable exposure. Situated upon a rapid southern slope, his grapes were ripened and marketed at high prices before the run of grapes came. This advantage can scarcely be over-estimated, as it is just here that the vineyard investment pays its interest.

The two plant houses of John Suttle and T. R. Renwick were objects of great interest to the chairman of our committee, he having become thoroughly posted in such matters. The rich experience of Mr. Suttle, his well grown plants and tasty grounds, were highly commended, while the genius of Mr. Renwick and his new methods were very attractive to all.

KALAMAZOO.

Colonel Wheadon's vineyard is worthy of careful mention at the hands of the committee. Situated as it is upon a high of ground that overlooks the "Big Village," it certainly has the advantage of elevation. The Colonel has cultivated highly, pruned thoroughly according to his system, and received abundant returns. The committee, however, criticised severely the method of pruning employed in this and some other vineyards, there being too much old wood left on the trellis, thus placing the fruit too far out on the vine. The renewal system proper is the one advised for general use by the committee.

LOWELL.

Six fine apple orchards were entered at this place, all located in the same immediate neighborhood upon high ground, and all have suffered less from the winter than the average orchard in the interior of the State.

The orchards entered by John, David, and Fred. Yeiter, all exhibited better culture and care than farm orchards in general, and the proprietors deserve encouragement. With the care given by special orchardists, either of these might take precedence over anything in the State.

Lewis Clark's orchard graded pretty low upon health and pruning, while the Alanson Calkins orchard manifested neglect in every tree.

An apple orchard entered by S. P. Curtis charmed the committee. It ranked nearly or quite perfect in protection and soil. The varieties were well selected, and there was less codling moth than in any orchard we had visited away from South Haven. We would advise this man with emphasis to abridge his farm operations and extend his orcharding.

IONIA.

One hundred and ninety-five feet above the river in the village of Ionia, is the residence of Mr. N. E. Smith, who entered his vineyard for premium. He has a clean exposure to the west and southwest for a mile or more, and derives all the benefits that may attend a full sweep of wind. Last winter the thermometer stood 19 degrees lower upon the low land than upon his high of land in the immediate vicinity. His fruit interest consists: first, in a fine apple orchard uninjured by the winter; second, a two-year Delaware vineyard; third, a five-year Concord vineyard. The last occupies three-fourths of an acre, and yields him, according to the season, from 4,500 to 8,000 pounds of grapes for market.

MONROE.

It is desirable that this report be quite abridged, and it is impossible to do justice to the large vineyard interest of Monroe. The members of the committee were astonished at the perfect system of culture that obtains in this locality, as well as the universally prolific yield of fruit.

Mr. George Bruckner piloted us through four of his vineyards. The Henrietta is a model in its class. The pruning was nearly in accordance with our ideal, the cultivation prime, but better than all, the quality of the Concord grapes exceeded everything we have yet tested.

J. M. Sterling and his son both entered vineyards, and among them all it would have been a very difficult task to decide as to their relative value had not the Society deftly arranged the matter in divers classes so that all do not come in the same competition.

A fine apple orchard entered by J. M. Sterling is worthy of abundant mention as illustrative of the truth that these people make grapes a specialty rather than apples. The orchard contained many valuable varieties. The trees were tolerably healthy; but in its general aspect, productiveness, etc., it did not exhibit the especial care that is given to apple orchards elsewhere.

The Detroit Wine Company have a fine show of grapes, but the vineyard scarcely exhibits the health of last year. But the Pointe Aux Peaux Wine Company eclipses everything. Under the guidance of Mr. Sterling we were conveyed to a little grape Eden. The committee, after passing and re-passing through the different portions of the grape field, held an impromptu meeting to compare notes. Each member handed in the ideal standard to the chairman, saying, "Here are our marks upon this entry." It indeed seemed quite perfection in every particular. Perhaps the most surprising thing that met us was the fact that here we found multitudes of Catawba vines, which were upon the trellis during the severe winter, all in fine bearing and apparently uninjured. We feel like congratulating this company in the most earnest language upon their wonderful success.

The committee left Monroe in the utmost good humor, each individual carrying on his arm a basket of luscious Henrietta grapes, and in everyone there was a Benjamin's portion in the shape of a bottle of Bruckner's best.

On my way home I visited the premises of N. & C. Chilson, in Battle Creek. A fine Delaware vineyard which they entered was modestly withdrawn on account of Mr. Chilson's appointment on our committee. I examined the pruning and tested the grapes, and must confess that the appearance of the vines and flavor of the fruit would rank well even along with the Monroe competitors. Here I found the finest display of evergreens in the State; but I will leave this and the nurseries for another article, which will close the series.

NUMBER FOUR—NURSERIES.

KALAMAZOO.

About the first work accomplished by the orchard committee after the State Fair was to visit the nursery of L. G. Bragg & Co., at Kalamazoo. Your humble correspondent felt a keen interest in the examination of Michigan nursery stock, having had a bit of experience in the damaging effects of the severe winter upon a few blocks of growing trees. We found the proprietors as

cordial as ever, ready to exhibit to us their whole establishment in the quickest possible time, which was the most satisfactory thing they could do.

They estimated their ground covered by close nursery stock at 125 acres, sixteen of which is occupied by the ornamental department. Two hours of quick driving enabled us to get a fair idea of the amount of stock, its manner of growth, character of the soil, etc. The soil is admirably adapted to nursery purposes, being mostly a good loam with gravel interspersed. The evergreens were upon the lightest soil, and looked very well, but were mostly small, their real value being a prospective one. The two-year apple trees had been cut back so that but this season's growth was to be seen. The committee most heartily commended this action, and only regretted that the process of elision had not extended to apple and pear stock *of all ages*.

This firm do their pruning mainly in the spring quite early. The position of packing grounds on a field of light sand is very commendable. The propagation of apples is principally from grafts rather than budding; the leading varieties being Baldwin, King, Greening, Wagener, Red Canada, and Northern Spy.

LOWELL.

N. P. Husted is proprietor of a large nursery establishment near Lowell, in Kent county. He has a situation 250 feet above Grand River. The soil is a rich clay loam with a porous subsoil, making very perfect natural drainage. The appearance of the landscape indicates a gradual descent in every direction from the nursery grounds. Here we found 200 acres closely covered by stock and orchards. The one and two years old apple stock could scarcely be improved upon. The evergreens were quite limited, but in assortment the ornamental department exceeded our expectations. We found a fair quantity of all the more popular shrubs, annuals, bulbous plants, and lawn trees. They have had in the propagation of the Weeping Willows most remarkable success. We passed through the finest block of them that any member of the committee had ever before seen. In matters of tools, cellars and convenience for doing business, we found Mr. Husted fully up with the modern improvements.

But the thing I consider of the greatest importance, was the fact that nearly every variety of fruit here propagated is first raised in a trial orchard and vineyard. Mr. Husted, assisted by his brother, makes a specialty of his orcharding, grafting all varieties of fruit that are of any note, and especially does he test new varieties before giving them his commendation. In this connection I may make the observation that we found but little difference in the various nursery situations as regards the matter of protection. It became necessary for us to judge upon this point entirely from effects rather than from any preconceived theories of our own. Certain kinds of the less hardy stock were injured in all parts of the State, while other sorts stand unimpaired. This firm deal quite largely in peaches, and have a very fine stand of buds this season, although from the effects of the dry season the seedlings do not present a very vigorous appearance. The nursery is kept in fine condition, and from every indication we judged there was a good division of labor practised and a judicious expenditure of work.

MONROE.

Two nurseries were entered at Monroe. Messrs. Reynolds, Lewis & Co. have 130 acres closely planted stock and 30 acres more tilled for use. The soil varies from a deep black prairie soil to a heavy clay loam. On the former they have placed the ornamental department, while upon the latter they grow the finest

blocks of standard pears. Here we found long rows of Red Canadas worked into the tops of rapid growing trees, looking healthy and vigorous. I. E. Ilgenfritz & Co. have a portion of their nursery grounds lying alongside of the Reynolds nursery, and the whole to a passer-by looks like one immense nursery farm. We were glad to see this pleasant feeling existing between the two firms, indicated more especially by having no division fence to separate their domains. Both of the firms have fine specimen orchards, but neither have as fine specimen trees of the more popular ornamentals as I would enjoy seeing. Every establishment of this character should for its own good have ideal specimen trees of each variety of hardy evergreen and deciduous ornamental. Yes, more than this. No nurseryman should deal largely in ornamental stock until he has first shown the effect of its employment in beautifying and adorning his home premises. I apprehend now that these Michigan nurserymen have passed entirely through the "poor period," they will pay more attention to this adornment of specimen grounds. In Mr. Ilgenfritz's nursery one of the most interesting features was this season's planting of apple stock. Long rows stretching for nearly half a mile, as straight as a compass could line them, of even, thrifty growth, promising a magnificent block of saleable trees in two years. We cannot speak too highly of the thorough cultivation practiced by these two firms. It would be a grand thing for some of our farmers to visit these establishments, if for no other purpose than to learn how to pursue a thorough system of drainage and cultivation.

It was a rich treat to converse with these Monroe men. They are men who have learned what they know of fruit and fruit trees in the school of personal experience, and know whereof they affirm, and withal they are far from being arrogant, but exhibit modesty and culture, and readiness to impart information without the least bit of ostentatious display.

BATTLE CREEK.

A little nursery at Battle Creek belonging to Chilson Brothers was not entered for premium is worthy of mention from the fact of the plan pursued in its establishment. These men first dealt in grape vines,—they began by planting a good vineyard; they next went into evergreens, and started a number of specimen trees. They are doing something in greenhouse plants, but use some of the best for their own flower beds. Chilson Bros. found the winter had materially injured their two, three, and four-year apple stock, and adopted the only true way—to wit: cut them off to the ground, and are growing them over again, thus making the best of trees out of a stock which, if they had used it in filling orders, would have given them a reputation not in the least desirable.

I feel such confidence in our Michigan nurserymen that I think I am warranted in saying they are too jealous of their reputation to place poor or injured stock upon the market. They all have some of as fine stock as can be grown anywhere, and by selling this, and only this, they can establish a name that will bring them abundant success, and make us all proud to advertise them as our own. As a committee we feel that just as good nursery stock can be grown in Michigan as any other State, and we feel proud of the men who have, through economy, industry, and thorough study, acquired the positions they now occupy. We feel justified in saying to the farmers of Michigan, "Do not patronize unreliable fruit tree agents from abroad as long as you can, by a very little expense, procure trees just such as you desire by going to your own State nurserymen."

A GRAND TRAVERSE FRUIT FARM.

JUDGE J. G. RAMSDELL'S PLANTATION AS SEEN BY T. T. LYON.

The residence upon this plantation is situated about forty or fifty rods from the shore of the west arm of the Grand Traverse Bay, at an elevation above it of about fifty feet. From the dwelling westward the ground rises quite rapidly; reaching, at a distance of probably eighty rods, a height of about three hundred and fifty feet above the water of the bay; the slope facing nearly eastward.

The land was originally timbered with a heavy growth of maple, beech, basswood, etc., with an occasional hemlock; and, like much of the land in this region, is of so porous a character that the rainfall, no matter how copious, is so readily absorbed that no trouble is experienced from washing or gulying upon the slopes, and yet it is said to withstand drought unusually well. It certainly produces a very vigorous and healthy growth upon such trees and plants as we saw growing upon it.

It is not unworthy of remark, here the snow during the winter is said to lie from one to two feet deeper, as a rule, than upon the more opened and exposed grounds of the peninsula; thus burying the smaller classes of plants quite out of harm's way. The effectiveness of this covering was demonstrated to us in the healthy, vigorous growths, not only of currants, gooseberries, and black caps, all of which were bearing fine crops, but more convincingly in the strong, healthy canes and immense crops of fruit upon the more tender raspberries, such as Philadelphia, Clarke, General Grant, and even Brinckle's Orange; while so tender a tree as Downing's Everbearing Mulberry, which must have stood well above the snow line, and hence been subjected to a temperature 18 degrees below zero, demonstrates its immunity by a vigorous growth and the production of a fine crop of fruit.

Judge Ramsdell has occupied this place for about fifteen years, and, as we understand, selected it with reference mainly to the growth of fruit. At so early a date, little had been determined as to the capacity of the region for such a purpose, except that the immense crops of whortleberries, raspberries and blackberries, growing in the wild state, may be supposed to have pretty strongly indicated the probabilities of the case.

With reference, doubtless, to this lack of local experience, the earlier planting here seems to have been largely for trial, and hence, very naturally, it has involved the planting of a considerable range of varieties to be tested in various soils and aspects.

As stated in a previous article, a plat of peaches was planted at the foot of

the main slope near the dwelling, while another plat of this fruit was located higher up the slope. The partial loss during this season of the lower plat, while the higher one has escaped, affords a highly valuable elucidation of the benefit of mere elevation in securing exemption from the extremes of cold. From careful examination during the past winter, it was determined that during the coldest weather, with no wind blowing, a perpendicular elevation of about thirty feet was attended with two degrees rise of the thermometer.

Although we had, at sundry times, been favored with specimens of grapes grown here, we were by no means prepared to expect the eminent degree of vigor and productiveness that seemed to characterize this fruit here. We are not sure that Concord and Hartford Prolife, and possibly one or two others of the more common varieties, even fully maintain their usual vigor here, although evidently in full health; but we feel it safe to say that the Rogers Hybrids (more particularly Agawam and Wilder), and in a still more especial degree the Delaware, as seen upon the trellises here, are the most satisfactory specimens of vigorous health and well distributed productiveness that we remember to have seen the present season.

Israella does not seem to be quite as satisfactory here as in some other localities, while Iona seems to need the full season to ripen fully. It (Iona) starts slowly in the spring, but to a good degree redeems itself during the latter part of the season. It likewise commences to ripen in tolerable season, and is very palatable when but partially mature; but it is slow in acquiring its highest quality and full maturity. It will take the highest rank here both as a dessert and wine grape, if it shall be found to ripen with certainty.

Adirondac, although less vigorous and productive than most others of the same season, seems quite as successful here as elsewhere, and not specially liable to the mildew of the foliage, to which it has been found to be so generally subject.

The vines in these vineyards are grown with a horizontal cane, from which uprights are trained for the production of the fruit; the amount of which is in a great degree determined by the amount of wood left at the fall pruning, although the size of the berries may to some extent be influenced by the stopping of laterals, usually found necessary during the summer to keep the vine within proper limits.

We observed here several low branched trees of the sweet cherries which had passed unharmed through the past winter, while, near by, two or three others of the same class, with trunks pruned from four to six feet high, had been so seriously injured by the past winter as to insure their death at no distant period.

It is a commonly received opinion that pear trees are unsuccessful, except in soils containing a strong admixture of clay; hence we were hardly prepared to see, as is the case here, a plat of pear trees growing in the soil we have described, apparently in fine health and vigor. The same may be said of a considerable plantation of plums, standing in the same soil, which show the abundant, rich, dark-green foliage always indicative of robust health. These circumstances, together with the character of the native growth of timber upon the soil, seem to indicate that it must contain compensating elements, (possibly in the subsoil) as a substitute for the clayey admixture usually so indispensable to the highest success of the two last named fruits.

A very considerable plantation of apples has also been made upon some of the higher portions of the slope heretofore described, embracing a considerable

range of varieties. The trees are apparently nearly or quite uninjured by the past winter, and generally in a healthy condition, although yet young and but few of them in bearing. Among them Golden Russet and Rhode Island Greening seem to be the leading varieties, although we also recognized Wagener, Rambo, Red Astrachan and some others, the majority of them being unrecognizable in the absence or immature state of the fruit.

As has already been stated, it is proposed to extend the plantation of peaches higher up the slope; the experience of the past indicating that, by so doing, the injuries resulting from very low temperatures in winter are likely to be to a considerable extent avoided.

The grape is also so far encouraging that, in addition to the very considerable space already devoted to this fruit, an additional vineyard was planted last spring, and the roots now in nursery for a further planting next season. These plantings are to be chiefly if not entirely of Iona and Delaware, which, everything considered, are believed to be the most profitable among the large number of varieties tested here.

The climate here is such that grapes, apples, and the other late fruits continue their growth, upon the branch, without danger from freezing until near the setting in of the winter, which occurs in November; so that, when gathered, they are not (as is the case further south) subjected to an interval of warm weather after gathering, hastening maturity and decay, but may be at once put away for the winter.

Applying this advantage to the grape, (and it applies with greater appropriateness to the apple and pear) the Judge has constructed a cellar, apart from other buildings, excavated in a gravelly knoll, entered upon the level, guarded against frost at the entrance by double doors, and provided with ventilation for the regulation of the temperature and the removal of excessive moisture. When gathered, the grapes are stored here, in shallow boxes or in layers upon shelves, and with freezing weather the temperature is allowed to run down to near the freezing point, and is maintained at that point, as nearly as practicable, during the winter. The result is that the fruit undergoes very little change till the advent of warm weather in spring. As an illustration of the effectiveness of this process under the above circumstances, we were favored during the latter part of March, 1872, with specimens of Agawam and Delaware grapes, still in fine condition, which had been grown here and preserved in this manner.

The grapes grown here have also, to some extent, been tested for the manufacture of wine; some of which from the Iona grape, now two years old, is to our taste superior; although we might distrust our own judgment in the matter were it not reinforced by the verdict of those known to be connoisseurs.

September, 1873.

A KENT COUNTY PEACH ORCHARD AND GRAPERY.

Mr. Albert Baxter, editor of the Grand Rapids Eagle, furnishes the following to that paper respecting a small peach orchard and vineyard which, as he says, after the havoc played with the tender fruits by the "hard winter," is a rich feast for the eye to look upon. It belongs to Josiah M. Dean, and was entered for competition at the State Fair,—“peach orchard with succession,” and “vineyard for table use.” It is really worth the trouble for any lover of fruit and admirer of good culture, to walk all the way from the city to look at that orchard. It is located in Grand Rapids town, on the farm of E. N. Knapp:

“Yesterday, Sept. 24, the Orchard Committee of the State Pomological Society visited Mr. Dean’s orchard for examination. He has five acres of peach trees, three years from setting on four acres, the rest a year younger. They are set in blocks of 36 trees each, trees twelve feet apart, and alleys sixteen feet wide between the blocks. The reader may easily calculate the number of trees on five acres. The principal varieties in succession, according to the order of ripening, are: Hale’s Early, 50; Early York, 100; Crawford Early and Late, each, 200; Old Mixon, 50; Troth’s Early, 50; Smock, 100; with a few of other varieties. The soil is a clay loam, with a slight admixture of sand.

“The location is quite elevated, apparently considerably higher than the high grounds in the city; with a southerly exposure, sloping considerably, but not steep enough to wash badly. It has no woods protection, and the only protection on the north and northeast is the higher elevation of the grounds, with adjoining apple orchards in those directions. This description of location, soil and exposure will also apply to the vineyard, with the additional remark that the acre of grapes is near the south and lower side of the plat.

“The peach trees are as handsome a lot as we ever saw. The stalks are clean and smooth, about four or four and a half feet, average, to the limbs; the tops are trimmed to comely shape and thickness, the foliage dark green and beautiful and there is no indication now of any injury by the severe weather of last winter. Mr. Dean stated that the new growth was killed back a little from the tips, in spots, but in pruning all the dead twigs were removed, and a fine growth has been made this season. Pruning was done in June and July. The field was well cultivated till the first of August, and the trees are apparently in excellent condition for winter. They are remarkably thrifty, with strong stocks, so large in fact as to suggest that they may have grown too fast, but the test of last winter seems to settle that. Another remarkable fact, and we might say phenomenon, is their absolute freedom from the ravages of the peach worm or borer. Not a sign of the insect is visible, and Mr. Dean says he has never seen one upon the grounds, nor in any other peach orchard in that particular locality, of which there are several. This entire exemption from that

pest of the peach tree is singular, and must be attributable, we think, to some peculiarity of the soil. It is doubtful if there is this year another so fine a young peach orchard in Michigan.

"As before stated, Mr. Dean has one acre of grapes,—about 520 vines; 200 Delaware, 250 Concord, 20 Clinton, and a few of other varieties. They were planted three years ago, and last year produced about \$80 worth. They are on wire trellis, the top wire about five feet from the ground. Pruned in April, beginning in the latter part of March. The ground is thoroughly cultivated.

He commenced picking the Concord Sept. 1, the Delaware a week later, and has sold \$315 worth from these two varieties,—about three-fourths of the acre of ground,—the Delawares at an average price of 15 cents a pound, and the Concords at about 9¼ cents; and has many yet left. The whole crop is estimated at \$350. The Clinton in his vineyard has an excellent flavor. The grapes were marketed in Grand Rapids.

"What will be the judgment of the Orchard Committee we do not pretend to forecast. We noticed that in their blank schedules they entered some pretty good looking figures against several of the points to be considered in their report. Those present were Secretary Thompson, and Messrs. Beal, Gregory, and Merriman."

THE MONROE COUNTY VINEYARDS.

BY THE EDITOR OF THE MONROE COMMERCIAL.

The committee of the State Pomological Society for examining orchards, nurseries, and vineyards, visited Monroe on Friday last, and spent Friday and Saturday examining the nurseries and vineyards in this locality, entered for premiums. The committee is composed of Prof. W. J. Beal, of the Agricultural College, Chairman; W. H. Gregory, of Pine Grove, Van Buren County; C. W. Garfield and C. N. Merriman, of Grand Rapids; and N. Chilson, of Battle Creek. They were also accompanied by the Secretary of the Society, J. P. Thompson, of Cascade Springs. The committee were met at the depot Friday morning by Messrs. I. E. Ilgenfritz, E. H. Reynolds, Baker Lewis, J. M. Sterling, and G. W. Bruckner, and proceeded at once to the nursery of Reynolds, Lewis & Co., to commence their labors. The nurseries of Reynolds, Lewis & Co., and that of I. E. Ilgenfritz & Co., were entered for premiums. George W. Bruckner enters four vineyards, W. C. Sterling one vineyard, J. M. Sterling one vineyard and one orchard, and the Pointe Aux Peaux Wine Co. their vineyard at the Point. The forenoon of Friday was consumed in examining the "Monroe City Nursery" of Reynolds, Lewis & Co., who have 130 acres growing trees. This nursery is all in one body, and the committee expressed themselves highly pleased with its condition and arrangement. The afternoon was spent in examining the "Monroe Nursery," I. E. Ilgenfritz & Co., proprietors. This firm have between 200 and 300 acres bearing trees, on four separate farms. The committee expressed themselves greatly astonished at the extent of these nurseries, having had no idea that so large nurseries were in cultivation in the State. The points on which they examine and base their reports and awards are: soil, protection, nearness to market, variety and arrangement, culture, pruning, grafting, healthfulness, and freedom from insects, and comparison with test orchards. On several of these points, as soil, nearness to market, culture, etc., the Monroe nurseries were marked number one by several members of the committee, but their full report is to be made at the next meeting of the Society.

On Saturday morning the committee took an early start for the vineyards on their list. The Henrietta Vineyard, owned by Miss Henrietta Bruckner, which took the first premium last year, as the best Concord vineyard, was found in excellent condition, and the vines well laden with fruit; also Bruckner's River Raisin Vineyard, and his Lotus Island Vineyard, the latter containing five acres of Concord and Catawbas, the fruit large, fine, and well flavored. Another island near by, owned by G. W. Bruckner and E. J. Boyd,

growing Concords and Delawares, was found in a flourishing condition, and also the island of W. C. Sterling, with four acres of Concord vines. These islands seem to possess advantages over the main land, the waters of the bay keeping the frosts off to a later date, and enabling the grapes to ripen up more fully. The vineyard and the apple orchard of J. M. Sterling, near the docks, were also examined and highly commended. This vineyard is only $2\frac{1}{2}$ acres in extent, and was the first vineyard planted in the county, being planted in 1866. There are now over twenty vineyards in this vicinity, embracing in all nearly 200 acres.

J. M. Sterling's apple orchard was declared by the committee to be pretty nearly a number one orchard, the trees being vigorous and healthy, well pruned, and well laden with fruit, and the varieties among the best grown. The question was asked, "is it a good plan to give hogs the freedom of the orchard, as Mr. Sterling does?" "Most certainly," was replied, "the hogs destroy the insects, and keep the trees and the fruit healthy."

Messrs. Sterling and Noble having chartered the tug A. D. Perkins, the committee, accompanied by J. M. Sterling and H. M. Noble, enjoyed a delightful sail down the river, and across to Pointe Aux Peaux, where they were met by Messrs. W. A. Noble, Rev. Dr. Mattoon, E. H. Reynolds, and other gentlemen, of Monroe, and J. R. Bennett and J. I. Knapp of Adrian, who accompanied the committee in an examination of the Wine Cellar, and the process of making wine, and their large vineyard of twelve acres, in a most complete condition, and heavily laden with most beautiful and luscious fruit. The examination completed, the committee and other guests were entertained by Mrs. Sterling and Noble, with a sumptuous repast, to which they did ample justice.

At the table, Prof. Beal announced that the committee had just held a meeting, and had awarded the first premium of the Society, a golden medal to the Pointe Aux Peaux Wine Company's Vineyard, it being marked a perfect vineyard by the members of the committee, in all the points of examination, viz.: soil, protection, market, variety, and arrangement, culture, pruning and trellising, healthfulness, and freedom from insects, and fruitfulness.

Certainly we have never seen any vineyard better laden with fruit, or in better condition in any respect, than that at Pointe Aux Peaux, at the present time.

The committee also found at the Point a small peach orchard, which they declared to be in the healthiest condition of any peach trees they had seen, free from yellows and other diseases, but bearing no fruit.

The labors of the committee being over they again embarked in the tug Perkins, and reached the Monroe depot in time for the 5 o'clock train, which conveyed them towards their several homes.

The committee expressed themselves not only astonished but highly delighted and edified by their visit to Monroe, and their examination of its nurseries and vineyards.

THE POLICY OF UNION FAIRS.

EXTRACTS FROM THE ANNUAL REPORT OF THE SECRETARY OF THE STATE POMOLOGICAL SOCIETY.

The policy of this Society has always been to hold its annual fair in connection with some other society of kindred aim and character. The first fair of 1870, humble and unostentatious, was held in connection with the Kent County Agricultural Society. We received \$250 from the County Society for our first fair. The second and third fairs were held in connection with the Northern Michigan Agricultural and Mechanical Society, 1871 and 1872. We received each year \$1,000, the printing and publishing of our premium list, and other necessary printing, and the free use of Pomological Hall on the fair grounds at Grand Rapids. The fourth fair was held in union with the State Agricultural Society at the same place, and we received \$1,500,—\$1,200 for our premiums and \$300 for expenses of fair, printing of premium list, and other necessary books and stationery.

These four fairs were *union* fairs. Every one of them was a *success*. The fame of these fairs has gone abroad over all the land. The policy of union has been vindicated by the results. I presume that 100,000 people have looked upon these our fruit exhibitions. The advantages of this policy are numerous; it involves no great risk; the hall is certain; the money to pay premiums is very nearly certain; the people to look at the exhibition are certain to come,—they come to look at the stock, the manufactures, the mechanics, the horse, the sewing machine, the organ, the Brahma, the trot, the Irish giant, and they also take a look at the fruit. Thus we secure an audience,—we get a hearing. We reach thousands that otherwise we should not reach or attract; we teach a multitude that otherwise would remain in ignorance of the fact that fruit-raising was a real and important industry of the State. The arrangement for half fare is made for us as well as for all others; we are to no trouble about that.

A due regard for the proprieties of the occasion require me to say that the relations of officers and members of the two State societies, at the late fair, were very pleasant and agreeable. The president of the State Agricultural Society has always been a member of the State Pomological Society, is now a life member, and he has contributed in word and deed, in every possible manner, to encourage the growth and success of this society. Naturally generous, public spirited and noble hearted, his generosity and public spirit have never failed to appreciate our work and needs and achievements. On the first day of the fair the gates were thrown open to fruit exhibitors in common with others, Exhibitors who were obliged to enter with teams during the days of the fair, or who were obliged to keep attendants, were furnished with entrance tickets. The officers and members of our Society were treated alike with the officers and

members of the State Agricultural Society, and so were the members of our awarding committees. There was very little friction between the two societies, and very little cause of complaint. From the president, secretary, and executive board of the State Agricultural Society we received every courtesy and attention that we could ask or expect.

It is well enough to consider what we have gained by this union policy. A certainty of nearly sufficient funds to pay premiums; printing bills paid; a large and commodious hall free of expense; splendid exhibitions and magnificent crowds of people to look at the exhibitions. In other words we have had success. Other pomological societies of sister States dwindle,—we live.

At the same time it must be admitted that there is a growing sentiment in favor of exhibitions by ourselves. That in the beautiful and generous city of Detroit, the commercial emporium of the State, where much attention is paid to fruits and flowers, a public hall could be procured for six days for an annual exhibition of our Society; that a premium list of \$1,500 could be offered by the help of public-spirited citizens; that half fare could be obtained over all the railroads of the State; that the necessary printing and advertising could be obtained for a reasonable sum, and that a fair could be held there of the products of the orchards, vineyards, gardens, nurseries, conservatories, parlors, plant houses, that would alike honor the State, the Society, and the people. That time may not yet have arrived, but that it may come is possible and probable, and I hope the members of this Society may live to see it. But for the present I believe our true policy is in union fairs.

OUR PREMIUMS.

The experience of the past year has shown that we cannot contract our premiums under the sum of \$1,500 without injuring the usefulness of our fairs. This includes the orchard premiums, which amounted in cash, besides diplomas, to \$187. A few years ago I advocated the doing away with all premiums, trusting to the public spirit of individuals to make a fair. The millenium has not yet arrived; money makes a fair; the more premiums the larger the fair, and the more money the greater the stimulation and emulation; and the more money you will get the more will you pay. I would like to see a premium list of \$2,000 for flowers and fruits. Is that too great a sum for Flora and Pomona? But \$1,500 we must insist upon or go backwards.

At least \$300 should be given to bring forward floriculture. Under the stimulation of our premiums this department is coming forward. The florists of our State,—and there are many skillful and intelligent gentlemen engaged in the growing of flowers,—begin to see the dawn of a brighter day for them. I am convinced that under a liberal premium system more and more space will be required for flowers at our fairs, and I look to see the large hall usually known as Floral Hall entirely dedicated to and occupied with flowers. Gentlemen will talk eloquently about the adornment of homes and the cultivation of rural tastes, and then they will vote \$100 for premiums for flowers and trees and plants, at a State fair, or about what they would give one Shorthorn bull. The proper way is to put money into the premiums. When Mr. Hibbard, the young and true florist of Jackson, arrived at the State Fair, he was surprised to see the display, and said he never had any difficulty about getting space before. The premiums were quite liberal in this department. Notice for instance the widespread competition and emulation created by the \$150 offered by Mr. Vick. This shows what premiums will do. The entire interior space of Pomological Hall at the State Fair should have been devoted to flowers. The collection unbroken and united would have been magnificent.

FLOWERS AT THE MICHIGAN STATE FAIR.

LETTER FROM THE FLORIST, JAMES VICK, OF ROCHESTER, N. Y., TO
THE SECRETARY OF THE STATE POMOLOGICAL SOCIETY.

DEAR SIR,—I had such a “good time” at your State Fair that it did not seem like attending a fair at all,—it appeared like a pleasant visit among loved friends. Old and new friends seemed to have congregated together, and I think I could tell a good deal more about what and who I saw than of the flowers I exhibited. Still, as you desire a few words about the flowers, I will try to collect my thoughts upon the subject. First, a lady with a countenance as bright and beautiful as the most charming dahlia on the table, with eyes that made my favorite bright-eyed *Phlox rosea oculata alba*, almost—(Dear me, that will never do; will try again).

The flowers that deserved and attracted most attention were the Dahlias, Phloxes, Gladiolus and Asters. I think the people of Michigan had an opportunity to see the best, at least one of the best, collections of Dahlias and Gladioli ever made in America.



DAHLIAS.

The Dahlia is a most gorgeous flower, and though for a few years back its popularity seemed to be on the wane, it is now becoming more beloved than ever, while the newer varieties in size, form and color, far surpass the older

sorts. There are three pretty distinct kinds of Dahlias,—the *Show Dahlia*, the *Bedding*, and the *Bouquet* or *Pompon*. The *Show Dahlia* is the one best fitted for exhibition, hence the name. The plant grows from three to four feet or more in height, with flowers from two and a half to four inches in diameter. Those belonging to this class that are spotted, or striped, or tipped, are called fancy. The *Bedding Dahlia*, sometimes called the dwarf, usually attains a height of about fourteen inches, and makes a spreading, compact bush, covering a good deal of ground, and consequently making a good bed or mass, covering the entire ground if planted within reasonable distance. The flowers are not usually as varied in color nor as perfect as the *Show Dahlia*. The *Pompon*, or *Bouquet Dahlia*, grows about thirty inches in height, the plant is compact, the leaves small, and the flowers usually less than two inches in diameter, and quite perfect in form. They are useful for large bouquets, hence the name.

Everyone knows perhaps, that the *Dahlia* forms underground tubers, and in a strong rich soil these tubers become very large. These tubers are taken up before hard frosts, dried in a litter for a day or so, and are then stored away in the cellar out of the reach of frosts until spring. If the tubers are large and not well ripened in consequence of a wet fall or early frost, they will be apt to decay, and will need watching and assorting. Any place that will keep potatoes well will be found good for Dahlias. If good flowers are desired,—and of course we grow Dahlias for nothing else,—it is best to confine each plant to a single stem. Usually a tuber will throw up half a dozen shoots, but all may be removed but the strongest. If one of these shoots is placed in a pot of light soil and the pot is sunk in a hot-bed, the cutting will form roots and make a good plant. Those who have grown Dahlias from tubers for several years, and begin to think their Dahlias “run out,” will find a great improvement by growing entirely from “slips” one year at least. Large, ill-shaped tubers are apt to produce poor flowers, and if we use tubers at all for our own flowering, we always select the smallest, as all that is wanted is one eye at the neck of the tuber. There are so many varieties that we cannot attempt to describe them, but a dozen or two will give a good assortment of colors.



PHLOX DRUMMONDII.

The Annual Phlox, or *Phlox Drummondii*, as it is called, because first sent

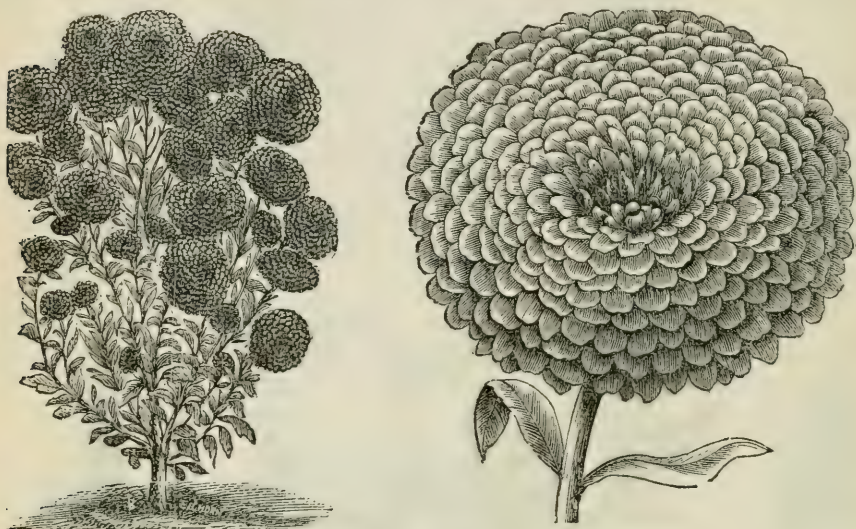
to Europe from America by a botanical traveler named Drummond, is one of the most useful annuals at the service of the American gardener. In no other way can we obtain so fine a mass of color as with this Phlox. They are of all colors,—white, pink, scarlet, and purple. A dollar's worth of Phlox seed of separate colors will make eight or ten good beds, each of a distinct color, and more floral display all through the summer than can be obtained by any other method for five times this amount. I like to get Phlox seed down early in a gentle hot-bed, or cold frame, and transplant about the middle of May, not setting the plants nearer than a foot apart. For cutting the Phlox is excellent, keeping in perfection a week in water. There are about seventeen distinct varieties. I have several varieties that I hope will prove valuable after a year or two, but they are not yet reliable, not quite constant. One is double, another with a yellow eye, and still another with the edge prettily fringed.



THE GLADIOLUS.

If we had but one flower—we were about to say we would have the Gladiolus; but we do not allow ourselves to say anything of the kind of late, for after writing an article—and not a very long one either—we discovered that we had made the same remark about three different flowers. Nevertheless the Gladiolus is a charming flower and possesses a host of good qualities. In the first place this flower is admirably adapted to our country, and seems to succeed better here than either in England, France, or Germany. While florists of these countries complain of disease which threatens to annihilate this beautiful flower, fortunately with us it is entirely exempt. It is also sure to bloom. With a dozen bulbs the cultivator is sure of a dozen beautiful stalks of bloom. For filling large vases few things equal the Gladiolus, and after cutting the flowers will keep in good condition ten days at least. The bulbs, too, are easily cared for. Before very hard frosts, take up the bulbs, cut off the tops, dry the bulbs for a day or two, then pack them away in a cool cellar

or upper room—anywhere almost, if not subject to frost. It is well to look at them occasionally, and if they appear damp and mouldy, remove them to a drier place. In the early spring they are ready for planting.



ASTERS.

The Asters are among the most useful of our autumn flowers. The improvement in the Aster is really wonderful. Many can recollect when it was only a single, or at least a semi-double flower, with an unsightly yellow center. Now the aster is perfectly double, some varieties almost as symmetrical as the Dahlia, and rivalling the Peony in size. The Peony-flowered, Rose, Victoria, and La Superb are the best of the large sorts. A class of Dwarf, sometimes called bouquet Asters, are interesting as single plants, and very desirable for a border. They generally grow only about six inches in height, and form perfect masses or bouquets of flowers, often almost or entirely concealing the leaves.

The Aster will not bloom in perfection in very warm dry weather. It is best, therefore, to sow the seed pretty late, certainly not before the middle of May. Select a showery time for transplanting, and disturb the roots as little as possible. This caution is necessary, because if the seed is sown late, as recommended, it will be warm at transplanting time. The Aster will succeed in almost any soil, but a cool, strong, rich soil will give the strongest plants and the largest flowers. Manure water will be thankfully received and gratefully appreciated by the Aster.

JAMES VICK.

THE OLD MISSION ORCHARDS.

[At the meeting of the State Pomological Society in October, at Traverse City, a delegation visited the Old Mission Orchards. This delegation appointed Wm. H. C. Lyon to report the trip, and the following is the report:]

An invitation having been extended to citizens from abroad to visit the fruit farms of Peninsula township, Grand Traverse county, the following gentlemen availed themselves of the proffered offer, to wit: Hon. Henry Holt, of Cascade Springs; Hon. S. S. Bailey, G. W. Dickinson, and John Suttle of Grand Rapids; and Wm. H. C. Lyon, of Flint. On the morning of the 10th inst. we repaired to the dock of Hannah, Lay & Co., at 6 A. M., where we found the little steamer *Ella Burrows* in waiting. The day was delightful, as fine as an excursionist could desire. The waters of Grand Traverse Bay are clear and pure, and in some places 800 feet deep. As we were all residents of interior towns, it was refreshing to inhale such pure air and view such fine scenery as is here presented,—no dark, turbid waters, nor decaying saw-dust, such as is found in many of the inland streams of our State, which carry fever and ague in its train sufficient to supply a whole colony. Breakfast was announced by one of the fifteenth amendments of the boat, a young darkey of about sixteen summers and as many winters. As our appetites had been keenly sharpened, as many as could get to the first table did ample justice to the same; as for those of us who came to the second table we fared rather slim. Soon the boat whistle sounded our arrival at the dock at Old Mission, some 18 miles distant from Traverse City, where we found carriages in waiting. We were accompanied by Geo. Parmelee and W. W. Tracy, Esqs., who conducted us to the different farms on the Peninsula. The first farm visited was that of the former gentleman, consisting of some 500 acres, at an altitude, I should judge, of from 140 to 160 feet above the waters of the Bay. The land is heavily timbered with sugar maple, beech, basswood, rock elm, white ash, and some few other varieties of timber; is gently undulating as a rule, but in some places there are knolls or peaks that attain an eminence of 150 feet above the bay. The soil is dark sandy loam with gravel, highly impregnated with lime pebbles, from the size of a pea to that of a good sized boulder (the larger of which is, in many instances, gathered and burned to lime). The description given for one farm will answer, in the main, for all of the farms visited by us during the day, with the exception that a large portion of the farms of this section have an underlying strata of clay, which in many instances crops out near the surface, and is susceptible of being mixed with the upper strata by deep plowing. As some of us had a “young” breakfast, Mr. Parmelee invited us to lunch, which we moistened with some wine six years old, made by him from the Diana grape. We did not find it (the wine) hard to take. We commenced a survey of the

premises: first, of his peach orchard; second, of the grapery, but before we had proceeded far in testing his peaches and grapes dinner was announced. You would have been pleased to have witnessed how promptly all fell into line and marched for the house, where we found a sumptuous repast awaiting our arrival. To say that we did ample justice to the viands would be simply stating a fact. After dinner, basket after basket of choice peaches were served up, sprinkled in with choice grapes. As this farm contains 130 acres of choice fruit, consisting of grapes, peaches, pears, apples, plums, and small fruits, we had work before us, and commenced an examination of the premises, which we found in a high state of cultivation. Sixty acres of the orchard were sown to wheat, and looked well. The proprietor of this farm is probably one of the best posted fruit-growers in the State, having been largely engaged in the business in the St. Joseph country for a number of years.

We next proceeded to the residence of Mr. E. H. McCallum, where we were invited to tea. Here was spread before us a table loaded with everything that a hungry man could desire, but we were surfeited, our time was short, and we had just commenced the business in hand. As we were likely to be late home, Mrs. McCallum put us up a lunch, which was very acceptable.

Wm. A. Marshall's place was next visited, where we found a very fine farm and equally good orchard and grapery; such as Golden and Roxbury Russet, etc.; trees in fine shape, very healthy, and heavily burdened with fruit.

The next farm was Chas. P. Avery's, who has a very fine show of fruit for a young orchard. Everything about his premises is well cared for, and in a few years he will begin to reap a rich reward, if he keeps them up to the present standard.

Next in order came Prof. W. W. Tracy's farm of 300 acres. Here is another evidence in the right direction. His peach orchard is one of the best we saw of its size. His apple orchard is young and quite extensive. Everything about his premises is neat and tidy, and his orchard well arranged.

As night was rapidly approaching, we found it necessary to start for home. We would gladly have examined a number more of fruit farms, equally deserving, such as those of Messrs. Ladd, Curtis, Porter, and several others, but our time was too limited. To do justice by this one town it would have required three days.

As Mr. Parmelee was desirous that we should see one more farm before retiring, we called at John Helfreitch's. His orchard is close to the shore of the bay; the soil was a light, sandy loam, and to all appearances had not strength sufficient to produce anything but beans, sorrel, and mullen; but strange to say, the apple trees were remarkably healthy, of rich foliage, and so over-burdened with fully developed fruit that the limbs were literally borne to the ground. We went into the underground fruit cellar, where he exhibited some of the choicest specimens of Rhode Island Greening that we had seen during the day.

I will not attempt to enumerate the number of varieties of fruit which we saw this day; time nor space will not permit. Suffice to say this peninsula township (embracing the town of Old Mission), had on exhibition at the county fair at Traverse City, on the 8th, 9th, and 10th of October, 119 varieties of apples, 25 of peaches, and 20 of pears, every sample fully developed, of high color and fine flavor (except the peaches, which, owing to the season, were not of the usual size nor of fine flavor). The apples were splendid, and the pears, such as Bartlett, Flemish Beauty, and Louise Bonne de Jersey, were *par excel-*

lence, and would have caused the mouth of a graven image to have watered simply to behold them.

To Messrs. Parmelee, Tracy, and McCallum, and their families, are we especially indebted for acts of courtesy in providing for our wants during our short sojourn among them, which we shall ever hold in grateful remembrance.

W. H. C. LYON,

Chairman of Visiting Committee.

Traverse City, October 11, 1873.

REPORT OF THE MEETINGS

OF THE

MICHIGAN STATE POMOLOGICAL SOCIETY

FOR 1873.

MICHIGAN STATE POMOLOGICAL SOCIETY.

OFFICERS FOR 1873.

PRESIDENT—A. S. DYCKMAN, South Haven, Van Buren County.
TREASURER—SAMUEL L. FULLER, Grand Rapids, Kent County.
SECRETARY—J. P. THOMPSON, Cascade Springs, Kent County.

VICE PRESIDENTS.

J. G. RAMSDELL, Grand Traverse County.
T. T. LYON, Wayne County.
HUNTER SAVIDGE, Ottawa County.
HENRY HOLT, Kent County.
H. G. WELLS, Kalamazoo County.
J. E. CHAMBERLIN, Berrien County.
W. H. GREGORY, Van Buren County.
H. E. LIGHT, Montcalm County.
T. J. RAMSDELL, Manistee County.
B. HATHAWAY, Cass County.
A. J. COOK, Ingham County.
JOSEPH GRIDLEY, Eaton County.
JOHN GILBERT, Clinton County.
L. S. LOVELL, Ionia County.
NATHANIEL CHILSON, Calhoun County.
J. WEBSTER CHILDS, Washtenaw County.
D. G. EDWINSTON, Lenawee County.
THEODORE TAYLOR, Oceana County.
S. O. KNAPP, Jackson County.
S. B. PECK, Muskegon County.
Rev. JOHN SAILOR, Allegan County.

ISAAC GALE, Shiawassee County.
H. C. LEWIS, Branch County.
I. E. ILGENFELTZ, Monroe County.
CONRAD FEY, Saginaw County.
GEORGE LEWIS, Bay County.
EZRA HAZEN, St. Clair County.
HORACE H. CADY, Macomb County.
M. E. GROFOOT, Oakland County.
JACOB C. LAMB, Lapeer County.
DANIEL CLARK, Genesee County.
W. J. BAXTER, Hillsdale County.
A. C. PEUTZMAN, St. Joseph County.
RALPH ELY, Gratiot County.
WM. R. STAFFORD, Huron County.
DANIEL WIXOM, Sanilac County.
J. K. LOCKWOOD, Alpena County.
MILO L. WILLIAMS, Barry County.
SETH C. MOFFAT, Leelanaw County.
L. C. CRAWFORD, Presque Isle.
LUTHER H. FOSTER, Mason County.

EXECUTIVE COMMITTEE.

T. T. LYON, Plymouth, Wayne County.
H. G. WELLS, Kalamazoo, Kalamazoo County.
A. R. NOWLEN, Benton Harbor, Berrien County.
J. M. STERLING, Monroe, Monroe County.

C. JOSEPH DIETRICH, Grand Rapids, Kent County.
J. G. RAMSDELL, Traverse City, Grand Traverse County.

EX OFFICIO.

The President, A. S. DYCKMAN. The Treasurer, S. L. FULLER. The Secretary, J. P. THOMPSON.

EXECUTIVE SUPERINTENDENTS OF FAIR.

GENERAL SUPERINTENDENT—HENRY SEYMOUR, Paris, Kent County.
ASSISTANT SUPERINTENDENT—J. N. STEARNS, Kalamazoo, Kalamazoo County.
SUPERINTENDENT FRUIT DEPARTMENT—A. T. LINDERMAN, Grand Rapids.
ASSISTANT SUPERINTENDENTS FRUIT DEPARTMENT—D. R. WATERS, Spring Lake; ASA W. SLAYTON, Saranac, Ionia County.
SUPERINTENDENT FLORAL DEPARTMENT—WILLIAM ROWE, Walker, Kent County.
ASSISTANTS—MRS. WM. ROWE, Mrs. A. T. LINDERMAN.
SUPERINTENDENTS OF FLORAL DEPARTMENT IN FINE ART HALL—MR. and Mrs. C. J. DIETRICH, Grand Rapids.

THE JANUARY MEETING.

THE MICHIGAN FRUIT GROWERS IN COUNCIL.

The meeting of the Pomological Society at Lansing, January 21, 1873, was a great success. To hold a fruit meeting in mid-winter at the Capital, was a bold and novel undertaking, and one that was attempted with a great deal of uncertainty as to the result. But the lovers of the good cause rallied, and from all parts of the State came the best representatives of the fruit interest, and with them came the finest specimens of Michigan's winter fruit. The Apple, in all its glory, was king of the occasion. All parts of the State were represented,—from Grand Traverse to Berrien, and from Monroe to Saginaw. The generous and public spirited citizens of Lansing bid a hearty welcome to the delegates. The old library room adjoining the Senate chamber, was tendered for the exhibition, and the Governor and his associates, together with the Senators and Representatives, were equally courteous in attentions to the needs of the Society. Congratulations were tendered on all sides that the State had so successfully passed through the recent unparalleled cold test, and a determination was exhibited to push forward the pomological cause to its perfect attainment.

FIRST DAY.

Early on Tuesday, January 21, the fruit began to pour in from all directions, and soon additional tables were necessary to those already provided by the citizens of Lansing. The room was soon thronged by an enthusiastic, intelligent, good-looking and kindly-humored crowd. At about one o'clock, P. M., the newly elected President, A. S. Dyckman, of South Haven, called the meeting to order. C. J. Dietrich, the Secretary for 1872, read the extended minutes of the December meeting at Grand Rapids, which were accepted and approved. The President now called for reports of the

FRUIT PROSPECTS FOR 1873.

A large number of counties responded. The newly elected Secretary, J. P. Thompson, read from a letter written by George Parmelee, of Old Mission, Grand Traverse county, as follows:

"If you have not studied our climate you will be surprised to learn that we did not go below 8° below zero at Old Mission during the late cold snaps in

December, 1872. On the low ground it was a little lower. Our peach buds are not hurt at all, and the young wood is perfect to the tips. No discoloration of the inner bark. Our new wood was well ripened last fall, and we had no after swelling of buds. Where there is much full swelling of the buds, Crawford's will not stand a *wind storm* at 9° below. There is a great difference in the damaging effects between a *wind storm* and a *clear still* morning of the same temperature. I have seen a quarter of a crop of seedling peaches, where, in the preceding winter, two thermometers in close proximity, on a *clear still* morning showed, one 23° , and the other 24° below zero. Two years ago this winter we did not go below zero, on the high ground at this place, and in the two preceding winters 4° below was the lowest point reached."

D. R. Waters, of Spring Lake, Ottawa county, reported all peach buds unharmed excepting the Crawford, and plenty of that variety are yet good. The thermometer indicated 11° below zero at Grand Haven on the forenoon of the 24th of December, 1872, according to the government reporter. Ordinary thermometers at Spring Lake, at same time, indicated 14° to 16° below.

President Dyckman, who was familiar with the county, reported for Allegan county. He said that the peach trees upon the heights of that county were generally in good condition for fruit-growing, notwithstanding the cold.

Mr. H. E. Bidwell, of South Haven, Van Buren county, reported that the Early Crawford and Smock's Free varieties of peaches were injured the most. The other varieties were comparatively unharmed, and he anticipated a good crop of peaches the coming season. The morning of December 22d, 1872, was the coldest day of the season, when the thermometer marked from $10\frac{1}{4}^{\circ}$ to 16° below zero.

Mr. Gregory, of Pine Grove, Van Buren county, said that he lived 18 miles from Lake Michigan, at an altitude of 150 feet above the lake. On the morning of the 22d, at 7 o'clock, the mercury stood 13° below zero. He thought that the majority of the peach buds were uninjured, and he anticipated a good crop of fruit. Two-years-old trees were the worst injured.

Mr. A. R. Nowlen, of Berrien County, reported that the mercury fell on December 22d, as marked by his thermometer at Benton Harbor, to 22° below zero. Others indicated not so low. The buds at St. Joseph promised a good crop of peaches. He thought that seven-eighths of the perfect buds had been destroyed. The remaining eighth would produce a larger crop of fruit than the trees could bear.

Reports from Cass county announced that peaches and raspberries were injured, but apples and pears looked exceedingly good. This was the information of Mr. Hathaway, of Little Prairie Ronde.

Mr. Holt, of Cascade, Kent county, thought that on his place, which was on low ground, last year's growth of wood on peach trees had been killed by the frost. Other kinds of fruit were uninjured.

Mr. Husted, of Lowell, Kent county, thought that in his section five-sixths of the peach buds had been killed. The other varieties of fruit were uninjured. The thermometer at 8 o'clock on the morning of December 24th was 24° below zero.

Mr. Bradfield, of Ada, Kent county, reported the mercury down to 40° below on December 24th. Where the thermometer went so low as that he did not expect any of last year's wood on peach trees was alive. His grape vines were also injured. His vineyard was about 150 feet above Grand River. He advocated the laying down of vines.

Mr. Fuller, of Grand Rapids, said that at 4 o'clock A. M., on December 24th, no mercury was to be seen in the thermometer tube.

Mr. Suttle, of Grand Rapids, said that at 8 o'clock of December 24th, his thermometer was 35° below. He thought that the peach buds were more injured on the 22d, when the thermometer was only 26° below, because of the excessive wind that prevailed.

Prof. Cook, of the Agricultural College, reported that the greatest cold experienced at the college was 32° below zero. Persons in this (Ingham) and Shiawassee county had reported to him that their fruit crop was comparatively uninjured. He expressed the belief that severe cold without wind was not so injurious as a wind storm. His observations also led him to believe that the insects had not been killed by the cold.

Dr. Shank, of Lansing, reported his apple trees uninjured, and he thought his pear trees also. His peach buds were killed.

Prof. Beal, of the Agricultural College, reported that his thermometer at his residence in Lansing, at 8 o'clock on the morning of December 24th, was 38° below. He thought all the grape vines in this section were killed.

Senator Childs, of Washtenaw county, reported that the peach buds in that county were all killed. Grapes, pears, and apples unhurt. His thermometer on the 24th indicated 22° below zero.

Prof. Holmes, of Wayne county, reported that he made no observations.

Here followed another interchange of views relative to the value of laying down of vines. Mr. Bradfield advocated that system, and said that it would pay every time. Other gentlemen advocated straw for a covering, others earth, others manure.

T. T. Lyon, of Plymouth, Wayne county, reported that the greatest cold at his place was 17° below zero, on December 22d. On the 24th it was 1° warmer. Nearly all the peach buds in his neighborhood were killed. His experience in covering grape vines with earth was that it was dangerous on heavy soils. On sandy soils there was probably less danger; still, on the whole, he preferred some other covering in preference to earth. He believed in covering them. He believed in regard to other fruits than peaches that no degree of cold could injure them that did not kill the wood. He also coincided in the views previously expressed by other speakers, that a wind storm was the most severe on fruit trees.

John Gilbert, of Clinton county, reported that he had made no observations, but he believed that all varieties of fruit except peaches,—and even these in eastern localities,—were uninjured. This venerable gentleman exhibited numerous plates of beautiful fruit which he had kept in a dry cellar.

REPORT FROM MACOMB COUNTY.

The report from John E. Day, of Romeo, Macomb county, was here read as follows:

The apple crop of Macomb county, especially the northern portion, has been very plentiful, and with a few exceptions fair as regards quality. Some varieties, however, are not as good as in years past. The Northern Spy is almost universally declared "small and scabby," in many cases not worth the cost of harvesting, unless it be for cider. Baldwins have in some instances been found below the standard of that most excellent apple. Rhode Island Greenings are good, and are the Alpha of all apples for home consumption; and Canada Red for market. Wagener is just coming into favor as an early bearer, and good

in the market. The King apple is losing its reputation, proving in many cases coarse-grained, easily bruised, and not a good keeper. There has been an extensive demand for the Wine apple, principally on account of its rich appearance and great size. This apple seems to endure the rough and tumble of cartage and shipping well, and to open well at the journey's end. Some barrels of this variety contained by actual count but 90 apples. We lack a ready market for autumn apples, and hundreds of bushels have rotted upon the soil.

Our orchards are too plentifully supplied with early fall and summer varieties, unless the future will open a more reliable market. Some idea of the extent of the apple crop may be gathered from the fact that nearly 15,000 barrels have been shipped from the depot at Romeo, and thousands of barrels still remain in the cellars of producers.

We claim to rank with the first as to the quality of our fruit. The average price at time of picking was \$1 per barrel, the buyers to furnish and pack the barrels and the seller to pick the fruit and deliver at station. Peaches have been an entire failure. I remember having seen only one bearing tree, a poor sickly attempt, the fruit unworthy the name. The same may be said of plums, cherries, and in most places, of grapes and pears. Strawberries set bountifully, but the extreme drought of summer shortened the crop. In the way of raspberries and blackberries we have in years past depended upon the pine woods north of us. This supply is for the present cut off by the extensive fires of 1871. The improved varieties have succeeded well. My Kittatinny's and Wilsons bore the largest and finest fruit I ever saw. Our experience has proved these points in regard to apples, viz.: 1. A well drained clay soil produces our best keepers; a sandy soil, the fairest and most highly colored fruit. 2. A cool wet cellar keeps the fruit through the winter in better condition. I heartily congratulate you on the success of your society, and wish for it an increase of usefulness in the future.

Very truly yours,

Romeo, Mich.

JOHN E. DAY.

The statement concerning the nature of Mr. Day's cellar was the subject of much controversy. It was thought that a dry cellar was preferable to a wet cellar for keeping fruit. The Wine apple referred to by Mr. Day was identified as the Twenty Ounce, or Cayuga Red Streak, a valuable apple in nearly all sections of the State.

MEMORIAL.

A very elaborate and ably prepared memorial to the Legislature praying for the appointment of a State Entomologist, was read by Prof. A. J. Cook. This memorial was presented to the House of Representatives by Hon. Henry A. Shaw, of Eaton county.

Adjourned.

EVENING SESSION.

On Tuesday evening Representative Hall was well filled with an audience composed of gentlemen connected with the executive, legislative, and other departments of the State government, together with many ladies and gentlemen of Lansing.

President Dyckman delivered his inaugural address, which proved to be a very scholarly, concise, and finished production. He heartily seconded the suggestion of Governor Bagley for the establishment of a School of Technology in connection with the Agricultural College. His many and valuable suggestions were all heartily approved by his intelligent and gratified audience.

A PRACTICAL ADDRESS.

After President Dyckman had concluded, T. T. Lyon of Plymouth, distinguished for his success as an orchardist, spoke at length. His topic was, "Some of the Difficulties and Needs of the Citizen, the Commercial Fruit-Grower, the Amateur, and the Farmer, together with a Consideration of the Mission of the Society in Providing for them."

The discourse, was entertaining and instructive, and being a thorough review of the subject, afforded equal satisfaction to horticulturists and to those unfamiliar with that branch of industry. It was received with applause.

MUSIC.

The proceedings were agreeably interspersed with music by an amateur quartette, consisting of Mrs. D. F. Woodcock, Mrs. R. B. De Vinney, Messrs. W. G. Bennett and H. A. Lee. They sang "Fly Away o'er the Deep," "Birds, Joyous Birds," "Home Again Returning," and "The Ivy Green," each being received by the audience with the most flattering tokens of appreciation.

After Mr. Lyon's address the Treasurer, Hon. S. L. Fuller, made his usual irresistible appeal for memberships of the Society. A number joined, among whom was Governor Bagley, who was satisfied with nothing less than a life membership.

During the proceedings an eloquent letter was read from Judge H. H. Emmons, then holding court at Knoxville, Tenn., expressing much sympathy with the objects of the Society, and regretting his inability to attend and address the meeting. In the course of his communication Judge Emmons said the repute Michigan had attained as a fruit-growing State was every year worth to it tens of thousands of dollars.

Among the objects of special interest on exhibition were three medals, of gold, silver, and bronze, being prizes that Mr. T. T. Lyon had received from the American Institute, New York, for the best and largest display of apples ever shown there. Few residents of Michigan could bring themselves to realize the fact so eloquently set forth by the medals belonging to Mr. Lyon.

After the meeting adjourned a conference of the Executive Committee was held, at which it was decided to ask the Legislature for an appropriation of \$2,000.

Some very fine oranges on plates in the old library attracted much attention. They were sent by M. L. Williams, of Hastings, and came from the plantation of Hon. H. S. Sanford, south of Lake Monroe, at the head of navigation on the St. Johns River, Florida.

THE SECOND DAY'S PROCEEDINGS.

The attendance on Wednesday morning at the session of the Pomological Society was greatly increased by arrivals from all parts of the State.

Additional interest was added to the exhibition of fruit by the splendid collection brought from Traverse county by Geo. Parmelee.

Quite a quantity of wine was on the tables, and Mr. Bradfield thought it best to refer it to a committee. He said it had been stated that the President would exclude all wines. He did not believe the President would do any such thing. For himself he considered wines the *fruit* of the vine. This called President Dyckman to his feet, who defined his position in a very straight-forward way, and one which gave universal satisfaction.

The President stated that he was a Good Templar, and, as such, could not countenance the use of native wines even as a beverage. He thought, however, that the Society did not contemplate such uses of wine. He was aware that it was often desirable to use wine as a medicine. He did not think, at any rate, that he had authority to determine the matter for the Society. Unless some definite action was taken against it he should follow out the custom that had hitherto prevailed of appointing committees on wines when demanded.

Mr. James Scott, of Grand Rapids, declared that he thought any discussion of this matter would be unprofitable. Let the committee be appointed. The discussion was not continued, and it was understood that wines would be admitted to exhibition as before and referred to committees.

THE BALDWIN AND WAGENER APPLES.

The following letter from Myron H. Norton, of Smyrna, Ionia county, was then read:

SMYRNA, Ionia Co., Mich., Jan. 21, 1873.

To the President of the State Pomological Society:

DEAR SIR,—I understand the Society intend to revise the list of fruits recommended for cultivation in this State. Perhaps my experience may be of some advantage to your Society. I take pleasure in recommending the following varieties of apples as being preeminently in advance of all others where the greatest combination of desirable qualities is sought, among which may be mentioned hardiness, productiveness, fine quality of fruit, and the most perfect fitness to meet the wants of the family, and, at the same time bring the highest price in the markets of our principal cities; for all producers will have more or less of surplus fruit that will find its way to market. I regard the Baldwin and Wagener worthy above all others of heading the list, and I base this opinion upon experience in my own orchard and from observations made in different parts of the State. The Baldwin is an old, proved, standard variety, that has well stood the test, but I am confident it must soon yield its place to the Wagener, the coming apple for all uses. True, the Baldwin has failed in many localities; but when it does succeed, none of the old varieties have proved more profitable. Again, it is not as safe and sure while growing in the nursery as many other sorts, being often injured by the cold in winter and also by the bursting of the bark around the base of the tree in autumn, and, for these reasons, it has not been as freely offered for sale by tree dealers and nurserymen as its merits would appear to warrant. The Wagener is free from these defects, being of very hardy, sure growth, an early and constant bearer, fine keeper, the fruit sound and solid to the core, and of unquestioned good quality either for the table, cooking, or for market. I believe it combines a greater number of good varieties and has fewer vices than any other variety of apple with which I am acquainted; and, should it in the future, as it has in the past, sustain the reputation it so justly bears where it is best known, it must soon become the leading apple for all uses. I believe the time has come when we should take into account the several good qualities of a fruit and estimate its value by this standard in the same manner we would that of

farm implements or live stock. Establish a scale of points, a standard of excellence, and be guided by this standard in selecting fruits for the various purposes needed. In recommending lists of varieties for cultivation in different parts of the State, I am aware of the difficulty to be overcome in agreeing upon a scale of values for the different qualities of both fruit and tree to be used in determining their value for the various purposes they are needed. We can, at least, decide upon the approximate value of the different points of excellence, and introduce the beginning of an important work that may be more completely perfected in the future. I would suggest for consideration the following estimate of the value of qualities for market purposes:

Hardiness and vigor of tree.....	20
Productiveness and uniform bearing.....	20
Quality of fruit.....	20
Keeping qualities, whether summer, autumn, or winter varieties, and fitness for handling.....	20
Size and appearance of fruit.....	10
Adaptation to the greatest variety of soils and condition of climate.....	10
	100

Varieties disposed to drop a large portion of their fruit before maturity would be objectionable to some extent.

Very respectfully,

MYRON H. NORTON.

EXCURSION TO THE COLLEGE.

President Abbott was introduced, and stated that he had ordered the Agricultural College teams sent down in the afternoon to take out such members of the Society as would like to visit that institution. He said that there had been some complaint that the Agricultural College had not done more for pomology. He explained at length the financial straits in which the College had been kept for years, and stated that they had never, until now, seen their way to the commencement of any work in this direction. This year they had included in their estimates sums for this work, and if the Legislature would make the appropriations recommended a beginning would be made. The faculty had always felt interested in this Society, and had made sacrifices to allow some of their number to attend.

The President stated also, referring to the value of the College to the agricultural interests, that more than one-half its graduates manage farms and nearly one-half have farming as their sole support. One is a clergyman, but is chairman of a farmer's club which has a weekly attendance of over 200 members. The cordial invitation of the President was accepted with enthusiasm.

A letter from the Meteorologist of the Society, Mr. W. K. Kedzie, was read, promising a full report in a short time, to which President Abbott added a few remarks showing the minuteness and extent to which they had gone at the College in the keeping of meteorological records and statistics, a practice he was sure would be very beneficial, and its results highly prized in the future as they are even now.

THE PEACH BUDS.

A letter was read from Jacob Ganzhorn, who had examined the Early Crawford and Early Barnard peach trees all along the lake shore and had found

them in good condition. At the mouth of the Kalamazoo river one-half the peach buds were injured, but there were buds enough left.

At Douglass, Allegan county, Isabella grapes were injured, but the Concord vines were good to the tips of the bearing wood.

THE BELMONT APPLE.

Mr. Joel Andrews, of Saranac, Ionia county, sent a box of fruit by express, accompanied with a letter in which he states that he is planting an orchard of 1,000 trees of Wagener apples. He calls attention to the Belmont, a sample of which was shown and greatly admired.

APPLES FROM BOSTON, IONIA COUNTY.

Jeremiah Stannard sent a box of fruit, with this letter:

BOSTON, Ionia Co., January 18th, 1873.

DEAR SIR,—I send a box of apples to Lansing, consisting of the following varieties: Sweet Greening, Baldwin, Rhode Island Greening, Fall Pippin, Snow, King of Tompkins County, Jonathan, Melon, Yellow Belleflower, Black Gilliflower, Peck's Pleasant, Esopus Spitzenburgh, Wagener, White Strawberry, a seedling. The latter I consider one of the most prolific bearers I am acquainted with; season, from September to May. It never swivles; it bears very young; my land is timbered, with clay subsoil. I send the box and also this letter by P. D. Sneathen, a neighbor of mine.

JEREMIAH STANNARD.

MEETINGS.

Mr. Chilson of Battle Creek presented an invitation to the Society to hold its next meeting at Battle Creek, which was accepted.

Mr. Stearns invited the Society to Kalamazoo. He believed that much good could be done. It was agreed that the June Strawberry and Cherry Festival should be held at Kalamazoo.

Mr. Parmelee invited the Society to Grand Traverse in October. Accepted with applause. Then will occur the Grape Festival.

COMMITTEES.

The following committees were appointed:

On Apples.—C. J. Dietrich, Grand Rapids, chairman; Geo. W. Toles, Benton Harbor; J. N. Stearns, Kalamazoo; N. Chilson, Battle Creek; E. J. Shirts, Lansing.

On Flowers.—Prof. W. J. Beal, Lansing, chairman; D. F. Woodcock, Lansing; Prof. J. C. Holmes, Detroit; H. Shaw, Eaton Rapids.

On Dried Fruits.—D. R. Waters, Spring Lake, chairman; J. Webster Childs, Ypsilanti; Dr. H. B. Shank, Lansing; Henry Holt, Cascade; A. R. Nowlen, Benton Harbor.

On Wines.—J. C. Holmes, Detroit, chairman; F. M. Manning, Paw Paw; Judge Wells, Kalamazoo; S. O. Knapp, Jackson; James Scott, Grand Rapids; Dr. Shank, Lansing.

On Fruit Buds.—E. Bradfield, Ada, chairman; D. R. Waters, Spring Lake; J. N. Stearns, Kalamazoo; H. E. Bidwell, South Haven; A. R. Nowlen, Benton Harbor.

On Pears, Grapes, etc.—S. W. Pearsall, Alpine, chairman; P. D. Sneathen, Boston, Ionia county; John Gilbert, Ovid, Clinton county; G. W. Dickinson,

Grand Rapids; C. W. Garfield, Paris; Joseph Gridley, Kalama, Eaton county; W. H. Gregory, Pine Grove.

On Sweet Cherries for Lake Shore.—Mr. Parmelee, Grand Traverse; Mr. Waters, Spring Lake; Mr. Bidwell, South Haven; Mr. Nowlen, Benton Harbor.

On Sweet Cherries for Central Michigan.—A. W. Slayton, Grattan; Dr. A. Peck, Lowell; P. D. Sneathen, Boston; J. M. Stearns, Kalamazoo.

On Resolutions.—H. E. Bidwell, South Haven, chairman; J. C. Holmes, Geo. Parmelee, J. N. Stearns, J. M. Sterling, S. L. Fuller.

The afternoon was occupied in making an excursion to the College.

WEDNESDAY EVENING'S SESSION.

The Hall of Representatives Wednesday evening was crowded by a throng of people. Governor Bagley, with Senators and Representatives, occupied the chairs of the interior circle. Large numbers of the citizens of Lansing crowded the passage to the hall and many were unable to find seats. Altogether it was a very brilliant assemblage. Treasurer Fuller exhibited the beautiful fruits from Grand Traverse. The samples of Baldwin, Wagener, Belmont, Maiden's Blush, and Greening were unrivalled in their beauty.

The President called to order, and introduced Hon. Mr. Gordon, Representative from Wayne county, to the audience. He opened the meeting with a thrilling song which was delivered in touching and pathetic strains, and which brought from the delighted house repeated rounds of applause. This was followed by a paper by Prof. A. J. Cook, on the history and merits of the "Shiawassee Beauty," which the President declared was not a beautiful maiden with whom the Professor was enamoured, but rather, a beautiful apple and a native of the Professor's own rich county.

The exercises were again enlivened by the songs of the Lansing Quartette, and Mr. Marston, an officer of the House, volunteered a song which from its irresistible comic character and delivery set the audience in a roar.

Prof. Beal, read an interesting paper giving the history and requisites of an Arboretum.

Then followed B. Hathaway, of Cass county, who gave his auditors an extended and interesting account of the Codling Moth. Mr. Hathaway declared that the loss by the ravages of this insect in Michigan was sufficient, per annum, to pay the town, county, and State taxes of the commonwealth. A list of fruit was then adopted when the meeting adjourned.

THE THIRD DAY'S PROCEEDINGS.

Thursday morning again brought the people to the Capitol with renewed vigor. The committees were active in their examination, and it was apparent that this was to be the day of

REPORTS AND RESOLUTIONS.

The following were adopted.

Resolved, That the thanks of the Society are extended to the Hon. the Governor and Senators, for the use of the former library rooms for our regular meetings and show of fruits; also to the members of the House of Representatives for the gratuitous use of their hall for three successive evenings, and we thank all of them particularly for the deep interest they have shown in our Society.

Resolved, That we thank President Abbot and the professors of the State Agricultural College for their kind attentions and strenuous exertions in making our meeting so great a success.

Resolved, That we tender our thanks to, and promise our grateful remembrance of, the Detroit, Lansing and Lake Michigan, and the Chicago and Michigan Lake Shore railroads, not only for half fare, but for an extension of the time granted us to return.

Resolved, That we not only thank the reporters of the Detroit Free Press, Tribune and Post, and the Grand Rapids Democrat and Chicago Tribune, for their faithful attendance, but acknowledge with gratitude the many obligations we are under to them for present and past favors.

Resolved, That we thank the Presbyterian church for politely extended courtesies.

Resolved, That we render especial thanks to the Lansing Quartette club, and to the Hon. Mr. Gordon and Mr. Marston, for their gratuitous services also. They added very much to the interest of our meetings,—not forgetting *Esau*.

Resolved, That our thanks are extended very heartily to the citizens of Lansing for their generous hospitality. Every member of the Society, desiring it, has been entertained during the entire meeting.

Resolved, That the editor of the Michigan Farmer is entitled not only to our praise, but our labors in his behalf, for so generously publishing our proceedings for the past year, and for the offer of giving a full report of this meeting, to the extent of six pages, in his valuable paper.

Resolved, That the thanks of this Society be tendered to Mr. Curtis, the gentlemanly conductor on the Lansing division of the Lake Shore and Michigan Southern railroad, for kindness in detaining his train at Eaton Rapids on the morning of the 21st inst., at the request of our late Secretary, as telegraphed by him from Hastings, to enable him to reach this place with important papers in time for the opening of this meeting.

Resolved, That we cannot say too much in favor of Mr. L. B. Potter, President of the Michigan Central Agricultural Society, for services rendered us. We beg that he will only give us an opportunity to reciprocate his ever-to-be-remembered kindnesses by visiting us either individually or collectively.

Resolved, That we heartily endorse the proposition to consolidate the State Agricultural Society and the Northern Michigan Agricultural and Mechanical Society, and we believe that such a consolidation will be the commencement of a new era in agricultural and horticultural matters in this State.

Resolved, That we approve of the practice and policy of Union Fairs, and we hope to see a Grand Union State Fair held in Michigan during the year 1873.

Resolved, That we endorse the recommendation of our President, that at our next State Union Fair the horticultural department be placed under the charge

of this Society, and that we believe it to be good policy to increase the premiums for all the products of orchard and garden.

Resolved, That tree culture should receive the fostering care of this Society, and that premiums should be offered to encourage the planting of shade trees.

H. E. BIDWELL, South Haven,
J. C. HOLMES, Detroit,
J. M. STERLING, Monroe,
S. L. FULLER, Grand Rapids,
G. PARMELEE, Old Mission,
J. N. STEARNS, Kalamazoo,

Committee.

PROFITABLE PEACH AND GRAPE CULTURE.

C. Engle, of Paw Paw, Van Buren county, submitted the following statement: In 1872, 800 Crawford Early trees produced 3,700 twelve quart boxes, or 1,233 bushels, which sold for \$3.15, or \$3,883.90. After deducting freights, commission, and other expenses, this netted \$2.10 per bushel, or \$2,589.30.

He had 130 Hale's Early bearing trees, the fourth season from setting, which produced 300 boxes or 100 bushels, from which the net proceeds were \$2.25 per bushel, or \$225. These trees are planted 12 feet by 20, or 180 trees to the acre; the whole number occupying a trifle over five acres.

Two acres of vineyard, largely Concords, produced 6,000 pounds, which sold at an average of 5 cents per pound, or \$300 for the two acres. I cannot give the exact net proceeds, as a part were sold on the ground, a part at the village of Paw Paw, and a part in a foreign market.

REPORT OF THE COMMITTEE ON APPLES.

Mr Dietrich submitted the following report on apples:

To the President, Officers, and Members of the State Pomological Society:

GENTLEMEN,—Your committee who were assigned the delightful task of examining the apples put on exhibition, would most respectfully submit the following report:

1st. We find 540 plates of the finest apples that were ever set before an audience. These 540 plates were filled by 37 exhibitors, the largest of whom is W. H. Gregory, of Pine Grove, who fills 45 plates with 45 different varieties. The next is South Haven Pomological Society with 30 varieties. Next are some who exhibit 29, 25, 21, 20, etc.

W. H. Gregory, Geo. Parmelee, South Haven Pomological Society, Husted Bros., E. J. Shirts, J. W. Humphrey, and Joseph Gridley, have each put on exhibition 12 of the leading varieties, namely: King, Northern Spy, Baldwin, Rhode Island Greening, Wagener, Fall Pippin, Twenty Ounce, Canada Red, Belmont, Swaar, Talman Sweet.

Next, Nowlen & Toles, H. Savidge, G. W. Dickinson, J. W. Stearns, and L. L. Cady, each exhibit 6 of the above leading varieties. Having made this general statement, now allow me to particularize a little.

Here are the products from John Gilbert of Clinton; N. J. Daniels of Wacousta; Jas. Reeves, Stockbridge; Judge H. E. Shaw, Eaton Rapids; J. B. Randolph, Lenawee; S. M. Pearsall, Kent; D. L. Cady, Mason; A. D. Tubbs, Lansing; P. D. Sneathen, Boston, and others; G. W. Christopher, Lansing; Joseph Gridley, Eaton; and Husted Bros., Kent. Your time is too precious for

us to occupy in expatiating upon these fine displays, so we pass to the next table, where we find the products from the "open waters of Michigan." Yes, gentlemen, apples from north of the great pine woods, put here by our very esteemed friend George Parmelee of Grand Traverse; also a lot from D. M. Bagley, Lansing; J. W. Humphrey, Plymouth; Jas. H. Scott, Kent; E. J. Shirts, Lansing; L. B. Potter, Lansing; J. H. English, Eaton; H. B. Shank, Lansing; Prof. W. J. Beal, Agricultural College, Lansing; Joel Andrews, Saranac; A. W. Slayton, Kent; J. C. Bristol, Lansing; B. Hathaway, Cass; and we will add that our worthy Treasurer did not come here solely and singly for your dollars, but that he brought with him and put upon exhibition a fine specimen of a Lady apple. We pass to the next table, where we find our old veteran's apples from Cascade, Kent county,—we mean Mr. Holt; then Mr. Carter, Lansing; J. Satterly, Greenville; E. L. Valley, Ionia; Nowlen & Toles, Benton Harbor; J. N. Stearns, of Brigg's & Co., Kalamazoo; F. M. Manning, Paw Paw; Geo. W. Dickinson, Grand Rapids; Hunter Savidge, Spring Lake. This brings us to the last table at the farther end of the room, a collection put here by the man of muscle from the South Haven Pomological Society,—we mean H. E. Bidwell,—and another in the corner brought from Van Buren county by our wide-awake pioneer friend W. H. Gregory.

Our committee are constrained to speak particularly of a few lots; but before we say what we intend to, we will say that Lansing, or any other place may grow and flourish amid luxury and prosperity for years to come before she will probably see such an array of such fruit of such a superior quality as is before you here to-day. But yet, where there is so much there must be some lots a little finer or of better quality than others, and hence your committee would select some four or five lots as being superior in quality; and first of these must come the collection from Grand Traverse, brought here by Geo. Parmelee; next comes the collection of W. H. Gregory, of Van Buren county; next comes the collection of the South Haven Pomological Society; next comes the collection of P. D. Sneathen, who exhibits his neighbors' with his. Mr. Sneathen is from South Boston, Ionia county; next comes J. W. Humphrey and others of Plymouth, Wayne county. We will next speak of a few superior specimens found in some other lots; a beautiful Belmont in the collection of J. H. English, Ionia county, sent in by Joel Andrews of Saranac. Mr. Hathaway had some very fine Kings in his lot.

And now having gone through the lists as they stand before you, having made brief mention of the exhibitors, we will add a few words in the way of comment and with this we close. 1st. We recommend the adoption of the following resolution:

Resolved, That this Society tender their thanks to those who have added so much to the pleasure and interest of this meeting by burdening themselves with such a task as to put this array of fruit and flowers before us.

Now, ladies and gentlemen, is it not apparent to all that somebody has taken some time and trouble to make this an interesting and pleasant occasion?

Can you be made to believe that our friend Mr. Gregory would go into his cellar, pack carefully over two barrels of fruit, bring it all the way from Pine Grove to Lansing, merely for what he could expect it would pay him? No, gentlemen, he had the interest of this Society in his heart, and he must do something. There is that in the business or pursuit of fruit growing that makes men large-hearted and social, and this is what's the matter with our friend

just named, and so it is with all who have been permitted to attend our Pomological meetings at this place, Benton Harbor, South Haven, and Grand Rapids during the last year.

C. J. DIETRICH, Chairman,
NATHANIAL CHILSON,
EZEKIEL J. SHIRTS,
GEO. W. TOLES,
J. N. STEARNS.

REPORT OF THE COMMITTEE ON SEEDLINGS.

The committee to whom were referred the Seedlings on exhibition respectfully report that they find several varieties exhibited for name, but with no evidence that they are not from grafted trees of old varieties. The committee suggest that it does not seem to them discreet to act upon any variety shown as a seedling until they are placed in possession of a history of the origin of the same, together with all particulars bearing upon the questions of health, vigor, productiveness, season, etc., and they suggest that specimens of both fruit and young wood be also furnished the committee at some time other than the Society's meetings, thus giving a better opportunity for examination and report. They find one variety brought to their notice which, should it prove to be a seedling, gives evidence of value, shown by James Reeves, of Stockbridge, Ingham county.

Another offered by Jeremiah Stannard, of South Boston, Ionia county, is a fine looking fruit. It is, however, without history, and does not give evidence of value so far as quality is concerned.

Your committee would also call attention to a seedling shown by Mr. George Parmelee, from the old Indian orchards of his vicinity, at Old Mission, Traverse, which is a fine looking and productive sweet variety, although not considered valuable except as showing how varieties in that region seem to maintain their vigor, health, and productiveness at an advanced age. All of which is respectfully submitted.

T. T. LYON, *Chairman.*

REPORT OF THE COMMITTEE ON DRIED FRUIT.

The committee on dried fruit respectfully report that they have examined the fruit on exhibition, thus cured, with great interest, because of the importance that is to be attached to this mode of preserving these products, and with cheering satisfaction, because of the wonderful perfection that characterizes all the kinds of fruits and vegetables exhibited in this shape.

The Alden Fruit Factory, of Grand Rapids, through C. J. Dietrich, superintendent, has on exhibition Alden dried fruit and vegetables as follows :

Beets dried in two and a half hours.

Cranberries dried in five hours.

Squash dried in three hours.

Trophy tomato, quarter of an inch in thickness, dried in two and a half hours.

Onions dried in three hours.

Pumpkins dried in two hours.

Carrots dried in two and a half hours.

Green tomatoes dried in two and a half hours.

Quince dried in two hours.

Autumn Swaar apples dried in two hours.

No particular account of the sweet potatoes shown is taken, because they were treated imperfectly and are not fair samples. These articles were all cured the past year.

Mr. John Williams, of South Haven, has also on exhibition fruit and vegetables, cured by a process of his own invention, not yet fully developed to the public, as follows:

Wagener apples dried in two and a quarter hours.

Yellow Belleflower dried in two and a quarter hours.

Sweet Bough dried in two and a half hours.

President dried in two and a quarter hours. The greater sweetness of the Sweet Bough required the longer time to dry it.

Crawford peaches dried in four hours.

Seedling peaches dried in four hours.

Bartlett pear dried in one and three-quarter hours.

Winter Nelis pear dried in two and a half hours.

Green Gage and Damson plums dried in five hours.

Kittatinny blackberries dried in five hours.

Pumpkins dried in two and a half hours.

Hubbard squash dried in two hours.

Turban squash dried in two and a half hours.

Your committee enter upon no explanation to the Society of the details of the two processes by which these products have been preserved for the season that both Mr. Williams, the inventor of one mode, and Mr. Dietrich, the intelligent manager of an Alden Factory, are present and will explain to the entire satisfaction of the meeting.

All these fruits are presented in a neat and attractive shape, and differ in appearance from the ordinary house dried fruit, as faded brown differs from a lightly tinged white. Both exhibitors present their fruit soaked in water, and in this condition it tastes and looks like green fruit. The Alden fruit has been shown your committee cooked into sauce which exactly resembles green apples stewed.

Your committee are disposed to accord particular prominence to this class of fruit, and hail the competition set up by Mr. Williams to the Alden process as an indication that genius and science are busy devising improved modes for curing fruit that directly and largely enhances the value of both fruits and vegetables, and indicates further that there are progressive spirits who are unwilling to concede that the splendid process patented by Mr. Alden is the perfection of all that trained ingenuity can attain in that direction, and are making efforts to discover a better. This affords encouragement for the great future fruit growing of Michigan, because if fruit can be cheaply and rapidly converted into such shape as the fruit we have been called upon to examine, fruit growers will have the wide world for a market, and a demand beyond their capacity to supply.

Preserving fruit by a process that only removes the water and leaves it with all its original flavor and color, is the most encouraging direction in which fruit producers can look for assistance in securing the enduring prosperity of their occupation. Of course the canning process will always recommend itself for certain purposes, but a dehydrating process like that of Mr. Williams and Mr. Alden, possesses the great advantage over canning of more cheaply saving the

fruit, and in a shape that makes its shipment possible to all parts of the globe at remunerative prices.

D. R. WATERS, Chairman,
J. W. CHILDS,
A. R. NOWLEN,
H. B. SHANK,
HENRY HOLT,
Committee.

REPORT OF THE COMMITTEE ON WINE.

To the President of the State Pomological Society:

Your committee on wine and cider report that they found on exhibition samples of wine and cider as follows, viz.: From Dr. R. Winans of Benton Harbor, one bottle Catawba Wine of the vintage of 1867, one bottle Catawba Wine of the vintage of 1871; from Mr. S. Cook, Benton Harbor, one bottle Diana wine of the vintage of 1868; from A. R. Nowlen, Benton Harbor, one bottle Strawberry wine of the vintage of 1870; from Christopher Bruckner of Monroe, one bottle Catawba wine of the vintage of 1871, one bottle Delaware wine of the vintage of 1871, one bottle Concord wine of the vintage of 1871, one bottle Norton's Virginia wine of the vintage of 1871, one bottle Elderberry wine of the vintage of 1870; from J. M. Sterling of Monroe, one bottle Catawba wine of the vintage of 1871, one bottle Delaware wine of the vintage of 1870, one bottle Concord red wine of the vintage of 1871, one bottle Concord white wine of the vintage of 1871, one bottle Concord wine of the vintage of 1872; from E. Bradfield of Ada, Kent county, one bottle Iona wine of the vintage of 1872, one bottle Iona wine of the vintage of 1871, one bottle Delaware wine of the vintage of 1871, one bottle Adirondac of the vintage of 1872, one bottle Concord and Clinton, mixed, of the vintage of 1871; from W. G. Sinclair, of Spring Lake, one bottle Isabella and Clinton, equal parts, of the vintage of 1871; from H. C. Morton of Benton Harbor, one bottle cider twelve years old, one bottle Isabella wine of the vintage of 1872; from J. P. Thrasher of Benton Harbor, one bottle cider one year old.

We were pleased to find wine from several of the leading varieties of grapes, yet the specimens being mostly of the vintages of 1870, 1871 and 1872, were not sufficiently ripe for your committee to decide fully of their merits, all needing age to give them the smoothness that is necessary to render them as highly palatable as is desirable.

The Catawba of 1867 presented by Dr. Winans, although the oldest of the kind on exhibition, was not so smooth as some of a later manufacture. His specimen of 1871 seemed to be superior in quality to that of 1867.

The specimen from the Diana grape by Mr. S. Cook, was somewhat harsh, and inferior in flavor to the Catawba of some of the other exhibitors.

The Strawberry wine presented by Mr. A. R. Nowlen was smooth, palatable, and refreshing.

The Isabella wine presented by Mr. Morton was excellent, but needs age.

The Delaware shown by Mr. Bruckner, as compared with other kinds, was flat, insipid. His two specimens of Concord, being of the vintage of 1871 and 1872, are very good, and with age to tone them down will make excellent light wine. His specimen from Norton's Virginia is heavier and of finer flavor than his Concord or Delaware. His Catawba we think is inferior in body and flavor

to his Norton's Virginia. His specimen of Elderberry wine is too astringent to use as a beverage.

The Catawba presented by Mr. J. M. Sterling has body, rich flavor, and with age will make excellent wine. His Delaware will not compare well with his Catawba in body or flavor. It is a very mild wine. His specimen of red wine from the Concord is very harsh and not pleasant to the taste. It was fermented one day in the pulp. His specimen of white wine from the Concord is an improvement on the red wine, and is an excellent wine. The manufacture was the same as the red excepting it did not remain in the pulp. His specimen of Concord of the vintage of 1872 is a very superior wine, good body and flavor.

A specimen of wine presented by Mr. Bradfield from the Iona grape of 1872, is sweet, light, delicate and pleasant to the taste. His specimen of the same kind of the vintage of 1871 is an improvement upon that of 1872. The specimen of Delaware wine exhibited by Mr. Bradfield was the best specimen of this variety on exhibition in respect to body and flavor. His specimen of Adirondac is a very rich wine, but rather too sweet to suit the taste of most persons. His specimen from the Concord and Clinton grapes mixed, is a rich, sparkling wine. A specimen of wine made from the Isabella and Clinton grapes, equal parts, is light, pleasant.

A specimen of sweet cider presented by Mr. J. P. Thrasher, one year old, was clear, sweet and delicious. He says he can keep it in its present condition for any length of time.

A specimen of cider twelve years old exhibited by Mr. H. C. Morton was excellent, and as smooth and pleasant to the taste as good old wine.

The specimens presented, showed a great diversity of method in manufacture as well as taste of the manufacturers, each thinking his own superior. An improvement can be made by each. Your committee would make honorable mention of the specimens that came under their observation. All of which is respectfully submitted by your committee.

J. C. HOLMES, Chairman.
H. B. SHANK,
H. G. WELLS,
F. M. MANNING,
JOS. H. SCOTT,
S. O. KNAPP,

Committee.

REPORT OF THE COMMITTEE ON FRUIT BUDS.

Mr. Bradfield, of Ada, submitted the following report on fruit buds:

Of peach buds submitted to the committee from Spring Lake the following were the varieties and the figures, and they were from the peach orchards of Hunter Savidge, Lyman Hall, Martin Walch, W. G. Sinclair, George Seagrove, and Chas. E. Soule:

Coolidge's Favorite, 25 in 50 good; Hill's Chili, 30 in 50 good; Old Mixon Free, 21 in 50 good; Barnard, 36 in 50 good; Hale's Early, 39 in 50 good; Muscatoen, 42 in 50 good; Large Early York, 18 in 50 good; Honest John, 43 in 50 good; Jaques Rareripe, 42 in 50 good; Early Crawford, 35 in 50 good; Grosse Mingnon, 38 in 50 good; Smock Free, 40 in 50 good; Late Crawford, 10 in 50 good; Morris White, 45 in 50 good; Newcomb Seedling, 35 in 50 good.

Mr. Gregory, of Pine Grove, Van Buren county, exhibited hardy varieties of peach buds, 40 out of 50 good.

A gentleman from Ionia exhibited peach buds of the Early and Late Crawford varieties, none good; Barnard, Stump the World, Hale's Early, none good; Honest John, one in 50 good; Smock, 5 in 50 good.

The buds from A. S. Dyckman's orchard were all dead. President Dyckman remarked that people might wonder at his impudence in bringing dead peach buds for exhibition. He assured the gentlemen that many of the buds were alive when the limbs were cut from the trees. It was very cold when the limbs were cut, and they were taken into a hot room. This undoubtedly killed them—a scientific fact which was commented on by Mr. Stearns, Mr. Suttle and others.

The buds from the peach orchard of O. C. Lathrop, South Haven, came through the hands of the committee as follows:

Smock Free, 5 in 50 good; Crawford's Late, 6 in 50 good; Hale's Early, 20 in 50 good; Hill's Chili or Stanley's Late, 17 in 50 good; Barnard, 25 in 50 good.

The buds from the orchard of Normand Phillips, South Haven, adjoining the orchard of President Dyckman, proved as follows:

Old Mixon, 30 in 50 good; George 4th, 42 in 50 good; Michigan Seedling, 36 in 50 good; Bailey's Seedling, 24 in 50 good.

The wood of A. S. Dyckman's was very much dried and in an unfavorable state for examination, an adjoining orchard showing much more favorably.

E. BRADFIELD,
D. R. WATERS,
A. R. NOWLEN,
J. N. STEARNS,
H. E. BIDWELL,
Committee.

REPORT OF THE COMMITTEE ON GRAPES, PEARS, ETC.

This committee, by their chairman *pro tem.*, Mr. Charles W. Garfield, reported that for the season there was a good exhibition of Grapes and Pears; many without name.

Mr. Shirts, of Lansing, shows a pear of the first quality, similar in shape to the Sheldon and of full as delicate flavor. It is an admirable keeper and usually ripens for eating in March.

Dr. Shank exhibits another variety without a name, of a rather inferior quality.

Henry Holt, of Cascade, Kent county, presents good specimens of the Vicar of Winkfield.

H. E. Bidwell has the Sheldon, a good pear and well preserved.

Mr. Gregory, Pine Grove, Van Buren county, shows good specimens of three varieties, and another sort that has passed its prime.

N. P. Husted, of the Lowell nurseries exhibits three varieties including the Vicar of Winkfield.

GRAPES.

Nowlen & Toles, of Benton Harbor, have upon their table finely preserved specimens of the Diana, Catawba and Delaware.

C. Engle, of Paw Paw, presents upon the same table a whole box of the Diana, in nicely shouldered compact bunches, perfectly preserved.

Mr. Bidwell is here with the Iona, the queen of our common varieties. There your committee would fain have lingered testing the variety, discoursing upon its delicate aroma and exquisite flavor, until there was none left to tell the story to others, but actuated by a feeling of benevolence we passed to the

FIGS.

Mr. Bidwell shows a plate of figs grown upon his own place, with nothing but common cultivation and out of door care. While at South Haven, last fall, we noticed a goodly supply of thistles. Whether contrary to the Bible statement, they are there raising figs from thistles we are not warranted in saying, but feel that if these earnest people supplant each of their thistles by a tree producing such excellent fruit as Mr. Bidwell presents they are on the high road to fortune.

A plate of chestnuts in the burr bearing the name of D. M. Bagley is upon exhibition. They were grown in Lansing.

A few grapes not mentioned, and a plate of pears, were without the name of the donor, and we cannot give credit to whom it is due.

Several plates of the Isabella were placed upon exhibition by Hon. Mr. Shaw of Eaton Rapids, in fine preservation. All of which is respectfully submitted.

CHAS. W. GARFIELD,

P. D. SNEATHEN,

S. M. PEARSALL,

JOHN GILBERT,

Committee.

CONCLUDING PROCEEDINGS OF THURSDAY.

On Thursday afternoon, Prof. Cook illustrated, by means of charts, the divisions of natural history, and proceeded to give a brief lecture relative to the codling moth. He exhibited a trap for catching the cut worm, which consisted of a tin band six inches wide with a hole for a tack in one end and a slit several inches long in the other. This band is wound around the tree or grape vine and fastened by a tack passing through the hole and slit into the tree. His trap for catching the codling moth was a woolen band wound around the tree and fastened by a string tied around it in the middle. Whether the worms ascend the tree from the ground or descend from the branches, they are caught by the band, where they are easily killed by pressing the bands or otherwise. The professor exhibited two bands which he had used the past season, and which gave evidence of having done good work in slaughtering.

Mr. Toles, of Benton Harbor, put his bands in the crotches of the trees and run them through a clothes wringer to kill the insects.

Prof. Cook said this would not catch all the worms.

Mr. Parmelee said this subject of the codling moth was of great importance. He thought that catching was the great thing, the manner of killing was only a matter of taste.

THE YELLOWS.

This terrible malady of the peach was the subject of extended comment. Mr. Bidwell had prepared an elaborate report on the subject which was not read, but was referred to a standing committee to report at the Battle Creek meeting, and on motion Prof. Kedzie was made chairman of the committee.

On motion of Mr. Nowlen, Benton Harbor, the subject was discussed and Mr. Bidwell was called to the floor. He gave an exhibition of several peach boughs which had this disease. He thought that all the yellows in Michigan could be cured in two years by digging up the trees afflicted with the disease. He was of the opinion that the disease was brought into the State first from New Jersey.

The Secretary said that Solon Robinson stated, when at the Grand Rapids fair, that the only remedy was to dig up the tree, and burn it root and branch.

Mr. Bidwell, continuing, said that he considered that there was no hope for a tree that had been attacked by the yellows. In answer to a question, he said that the disease was spread by bees depositing the pollen of a diseased tree on the flower of a healthy one. Thence it spreads into the sap of the tree. He was satisfied that, if the matter was allowed to go unchecked, in a few years it would be impossible to raise peaches in Michigan. In his town (South Haven) a committee have been appointed to go through the orchards and take summary measures to remove every diseased tree. He hoped that every town would appoint a committee to watch the trees and remove every one affected. No varieties, not even the almond, were free from this disease.

Mr. Nowlen, of Benton Harbor, gave a brief history of the first appearance and the progress of the disease at that place. He said that seven years ago the disease was first discovered in Benton Harbor. It then spread rapidly. Where one tree was affected one year, five or six would be affected the next. In late years it has not been so bad. He concluded that the disease was epidemic in its nature. He advised any one who detected it in their orchards to root up the trees at once. He experimented three weeks last season, and found that pouring hot water in the crotches of the trees, and letting it run down the sides, was an excellent remedy. Slitting the trees had been tried by some, but he had seen no effects good or bad from the practice. His remarks were of a very encouraging nature, and were very acceptable and well received.

WHAT CONSTITUTES A COUNTY COLLECTION OF FRUIT.

At a previous meeting, it was voted that all kinds of fruit, dried, canned, preserved and pickled, should be admitted to a county collection of fruit.

Mr. C. J. Dietrich moved to reconsider this. He thought a county collection should consist of fresh fruits.

Mr. Lyon coincided with this view; at least he believed that the kinds of fruit to be included in a county collection should be defined, so that exhibitors should know with what they had to compete.

Dr Shank and Mr. Fuller contended that a county collection should embrace all the fruits of a county, dried as well as fresh. A county collection should illustrate the fruit industry of the county. The motion to reconsider prevailed, and the matter was referred to the executive committee.

REPORTS AND REPORTERS.

On motion of Mr. Bradfield, Mr. Charles W. Garfield, reporter for the Society for 1872, was continued as such for the present year.

The Secretary stated that the Michigan Farmer had tendered him the use of its columns, and that all the proceedings of the Society, the papers, essays and addresses, read and delivered before the Society during the year would appear in the Farmer.

THE EVENING SESSION.

The third evening session, Thursday evening, was well attended, and proved very interesting in its proceedings. The Alden fruit was illustrated by Mr. Dietrich, and the Williams fruit was elaborated by Mr. Bidwell. This latter invention of Mr. Williams, who resides at South Haven, is anxiously watched by the fruit-growers of the State. It is a *family* way of drying fruit, and if successful will revolutionize fruit-growing. Mr. Williams has applied for a patent, and the general expectation is that he will prove successful. He claims that his process does not conflict in the least with Mr. Alden's invention.

George Parmelee gave an interesting description of the Grand Traverse region and its adaptability to fruit culture. It appeared that there were many Indian orchards of an ancient date still existing. The Indian reservation was, in the estimation of Mr. Parmelee, a great drawback on the progress of the settlement.

Treasurer Fuller spoke of the development of the country and the large number of orchards being planted in all sections of the State.

The singing of Representative Gordon and Engrossing Clerk Marston of the House added very much to the entertainment of the evening. A vote of thanks was tendered these gentlemen. The audience joined in singing "Old Hundred," when the meeting adjourned *sine die*.

THE FEBRUARY MEETING AT BATTLE CREEK.

The February meeting of the Michigan State Pomological Society was held in Peninsular Hall, Battle Creek, on Tuesday, February 25th, 1873. There were present, representatives of the different portions of the Northern, Central and Southern sections of the State. The exhibition of apples and other fruits occupied the center of the hall. The ladies of Battle Creek, Marshall, and other places brought in an abundance of flowers and ornamental fruits, and it appeared as if a small greenhouse had temporarily placed its treasures for the temporary pleasure of the Society.

The meeting was called to order by President Dyckman, who announced that the Secretary of the Society, J. P. Thompson, was lying ill at Lansing, and was thus prevented from attending this session. On motion, C. J. Dietrich, of Grand Rapids, was chosen Secretary *pro tem*.

The chair stated the first business to be the reception of reports of the condition and prospects of the fruit buds and trees in the different sections represented, and under this head the Secretary announced a letter from Geo. Parmelee, of Grand Traverse, stating that the peach trees were all right, excepting a portion of the Crawford, which being less hardy than other varieties has suffered somewhat from the unprecedented cold weather of the season.

Mr. Husted, of Kent county, reported that, in his opinion, the peach crop of that county was nearly all destroyed, and the cherry in part; also plums, probably. Apples, however, were doubtless safe; grapes, except the few hardiest, are injured to a considerable degree, and on the whole the prospect was not so fair as was represented at the Lansing meeting last month.

Mr. Chilson, of Battle Creek, reported that peach buds in Calhoun county were "gone up," as well as many of the trees. Blackberries that stand up are mostly dead; most of the grape-vines that were left standing are in the same condition. Many grafted apple trees are hurt, but the wood of old trees is uninjured.

Mr. Adams, of Kalamazoo, considered peaches entirely lost, and many of the trees, especially those of younger and more thrifty growth, are seriously injured. The few days of warm weather last week showed many signs of damage to the apple tree.

Mr. Mott, of Battle Creek, had recently looked over an apple orchard, and found that the Baldwins and Greenings are badly injured, much of the wood of last year's growth being killed; other and hardier varieties were in better condition.

T. T. Lyon, of Wayne county, had found some of the wood killed, but did not apprehend that the apple or pear crop was much injured. Peaches now were of course out of the question in that section. Of the smaller fruits he could not definitely speak.

Mr. Gregory, of Kendall, Van Buren county, said a more recent examination had shown that the hope of peaches previously entertained must be given up. The wood is generally uninjured, except in some yearling trees. He expected a good crop of apples and of pears. Had not given much attention to the smaller fruits. Could not tell what effect the last freeze had had, since the thermometer has within two weeks past been down to twelve degrees below zero,—nearly as cold as it was in December.

President Dyckman, of South Haven, said that in an examination made of his own orchard just before the last hard freeze he found from thirty to thirty-five per cent of peach buds alive, except those of the Crawford.

Mr. H. P. Hanford, of Bristol, Indiana, whose orchard is on high ground, near the St. Joseph river, said the lowest indication of the thermometer in December was twenty degrees, and in January twenty-six degrees, since which dates he had made a superficial examination of the trees, and had found that there was no hope of many peaches this season. Whether the trees are killed, or very seriously injured, he could not tell. In the great "freeze" of the winter of 1855-56 his orchard of thrifty trees was killed down to the snow, but by cutting off all the top and leaving the stump a foot or two in height he saved them by the life and vigor of the roots. There will be no cherries this year, though the trees are not permanently injured in his vicinity. Most of the small fruits not covered by the snow are gone, though a thorough pruning back may secure a fair crop of some kinds. He was in favor of doing away with the Crawford peach. It was a good peach, but not hardy enough and did not pay.

Mr. Schuyler, of Chicago, in a recent visit to Southern Illinois and Indiana, had found the prospect of a peach crop in both sections very poor. There would be none of any consequence.

Mr. Hanford reports the wood of the Delaware grape all right. He never lays his down; and added that when it becomes necessary to lay down the Delaware grape vine to keep it from freezing we might as well stop raising fruit; as he considered it the hardiest of all fruit wood.

The President announced the following committees:

On Apples.—D. T. Fox, Kalamazoo, chairman; W. H. Gregory, Kendall, Van Buren county; E. N. Fairchild, Battle Creek; J. A. Davis, Marshall; C. A. Cooley, Battle Creek.

On Flowers.—Prof. J. C. Holmes, Detroit, chairman; Mrs. Jeremiah Brown, Battle Creek; Mrs. Tomlinson, Battle Creek; Mr. Chas. Miller, Marengo; Mr. J. A. Davis, Marshall. Meeting adjourned to 7 o'clock.

EVENING SESSION.

The Society was called to order according to adjournment, and after an announcement by the President that a choir of singers of Battle Creek had promised to intersperse the proceedings with musical entertainment, Prof. J. C. Holmes, of Detroit, was introduced, and read a very interesting paper on "The Early History of Horticulture in Michigan," introducing the subject with a reference to the old apple orchards and French pear trees along the Detroit river.

It appeared that the plum formed a great part of the fruit-growers' products

in those days. There was no trouble in ripening peaches and plums in Detroit, but the cold winters and the curculio have wrought great change in that regard. Peach trees, he thought, grew stronger and were more healthy in a heavy, strong soil like that of Detroit than in light soils. He never saw a case of the "yellows" there. The lecturer closed his reference to the associations that have had their day and retired from the field, with the hope that this new Pomological Society, strong, active, and energetic, may be well sustained and be able to accomplish its work well. The paper was attentively listened to, and at its close a hearty vote of thanks was tendered to Mr. Holmes therefor.

Prof. Cook, of the Agricultural College, then read a lecture of considerable length on "Birds and Insects, and their Relation to Fruit-growing," which was illustrated by large charts. A vote of thanks was tendered the Professor.

The professor devoted several pages of his paper to the defense of birds as immeasurably the friends and benefactors of the farmer, and especially of the orchardist. He referred more particularly to the much-abused robin, which for the first three months of the season feeds almost entirely upon the grubs, worms, moths, and caterpillars, a single bird often destroying hundreds of these pests in a single day. True, the robin takes a few of our cherries and small fruits, but it should be borne in mind that without the protection of these and the other birds we should get none at all, since the insects would so multiply as to overrun and devour everything. Instances were quoted, as of the English sparrows, where these feathered friends had entirely destroyed and banished the pest of the hang-worm—the canker worm that had become unbearable nuisances in certain named localities. The benefits of the birds to orchards had been so marked and noted by some of our own fruit-raisers that they took special care to protect them. Mr. Bidwell, of South Haven, proposes to introduce the English sparrows into his orchard to assist the native birds in their good work. The professor hoped gentlemen would investigate the facts indicated for themselves, and learn to prize at its true value the service performed by their feathered friends.

The professor devoted some time to illustrations of the various forms in which the insects noted, with others of their kind, are propagated, and by the aid of charts prepared for the purpose, indicated the stages of their growth and the changes through which they pass. At the close of the paper some discussion was had on the various methods of preventing and of destroying these pests. The professor urged that with constant care the most of them could be banished, and that Michigan could in a few years succeed in raising as good and as great an abundance of plums as she did in years past. Adjourned to Wednesday.

WEDNESDAY MORNING.

The Society came to order at 10 o'clock Wednesday morning, and in the absence of the President, who had been called to Eaton Rapids to meet and confer with the Executive Committee of the State Agricultural Society, Mr. J. M. Gregory, of Van Buren county, was called to the chair. He remarked that there was no special business set for this session, and suggested general discussion on any subject of interest that might be broached by the gentlemen present.

Mr. T. T. Lyon said he desired to discuss the point advanced by Prof. Cook, that healthy apple trees were not exempt from the attacks of the borer. His own observation had led him to believe that in no case did the borer attack a fruitful, healthy tree; but, invariably, there was some injury or disease that invited the insect to deposit its eggs where it did. This often occurs in trees whose trunks are exposed to the hot sun—almost always on the southwest side, by which the bark is thickened and discolored, and the sap perhaps fermented. In other respects the tree appears vigorous and healthy.

Mr. H. Hanford, of Bristol, Indiana, said his experience with the borer indicated the same state of affairs. Among hundreds of trees he had never found the borer to begin his attack except on the exposed or southwest side of the tree, and this occurs in trees that have been bent over by prevailing winds from that quarter. He said short trees almost always escaped the borer, as they were very little exposed to the glare and heat of the sun upon their trunks.

Mr. Brown, of Battle Creek, was inclined to think that both theories were correct; that trees the Professor deemed healthy, and which were so to all outward appearance, might have some disease unseen by the human eye, but which the borer instinctively knows to exist.

Other gentlemen expressed their views chiefly with respect to the destruction of the pest, the best way being, in their opinion, to cut them out before they go too deeply into the wood of the tree.

The subject of shrunk and dead bark on the pear tree, as a disease whose cause was entirely unknown, was taken up, and Mr. Hanford stated his manner of treating an orchard of some 500 trees which were thus affected. He peeled carefully away all the dead or shrunk bark, applied a coating of soft grafting wax all over the space, and had the satisfaction of finding a formation of new bark and recovery of the trees, only one of which had died, and this in face of the fact that some of the trees were stripped almost entirely around.

Mr. Adams, of Kalamazoo, said the disease was probably a species of blight. This sinking of the bark affects trees badly, and if let alone would cause death. In Europe the disease is as prevalent as in this country, and in many places the trees die out by whole orchards.

Mr. Mott said he had put the saw to all trees found thus affected, and cut them off below the affected part.

The secretary remarked that he had been successful in arresting the fire blight by clearing the earth away from the roots, and applying iron filings from the machine shop, again covering with earth, and the next year his trees made a very fine, healthy, and luxurious growth. He further said that he thought the two diseases—the fire blight and the dead sunken spots on the trunk—two separate and distinct diseases. This view was entertained by Mr. Hanford and others.

The chairman congratulated the Society that a remedy had been indicated for the disease which had depopulated so many excellent pear orchards in this State, and gave instances of the total loss of orchards by the "black blight."

J. C. Holmes related his experience in planting in heavy clay. Dr. Warder visited his trees and searched for the fire blight, but found none. I told him we could cure it. How? By planting in clay soil, and the trees recover of themselves. The Flemish Beauty succeeds well on light soil. Believes it will do better than on heavy soil, while the Winter Nelis is just the reverse. Adjourned.

WEDNESDAY AFTERNOON.

Assembling at two o'clock, Mr. Lyon in the chair, the Society listened to a paper by W. K. Kedzie, Meteorologist, descriptive of the great polar wave or cold storm of December, 1872, stating that the records of Yale College show the winter at New Haven the coldest recorded in 100 years, since the records have been kept there.

The coldest day in Michigan was December 24th, when the thermometer marked 32 degrees below zero.

During the winter, including December, 1872, January and February, 1873, the thermometer at Lansing was thirty times below zero, the winter previously noted, being that of 1872, when it was eighteen times below. The average temperature of the winter was seventeen degrees above zero. The snow fall for the winter has been forty-two and one-half inches.

The great polar storm, or wave of cold, which caused so great destruction of life and financial loss, commenced December 20th, and reached its highest point on the 24th. At Pembina the thermometer stood at thirty degrees below zero on the 20th, and at Fort Garry, across the British line, forty-two degrees. From that point the wave proceeded southeast, covering St. Paul and Duluth, striking Milwaukee, crossing to Grand Haven, sweeping over the State in an east and west line, and then proceeding northeastwardly, covering New England, the center line passing just north of Mt. Washington,

The lecture was illustrated by diagrams of signal service showing the progress of the storm as the wave of cold increased till it reached its height, and then subsided to the usual winter's temperature. Some curious incidents were noted, showing that the wave had regular pulsations or lulls in its progress, as, for instance, while at Detroit on the morning of the 24th the thermometer stood at ten, it marked thirty-two below zero at Lansing. The winters of the past ten years were compared as to cold and snow fall, etc., in tabular form, from records kept at the Agricultural College.

Mr. Kedzie placed before the Society a communication from the chief officer of the signal service, asking suggestions and co-operation to perfect the system now in operation, and to make it more useful to the several interests for whose benefits it is designed.

These benefits will soon, and to a considerable extent in the present year, be extended to the farmer and husbandman, by warning him of approaching storms, that he may secure his outlying sheaves and his windrows of hay.

At the suggestion of Mr. Kedzie a committee on this subject was appointed to prepare a memorial to Congress to make the necessary appropriations for increasing the number of stations, etc. W. K. Kedzie, of Lansing; T. T. Lyon, of Plymouth, and N. Chilson, of Battle Creek, were chosen such committee.

This committee subsequently submitted a form of memorial to the Signal Service Office, asking the establishment of stations where they may be of advantage, and pledging such assistance as the Society may be able to afford.

The committee adopted the following as the memorial:

To Gen. Albert Myer, Chief of U. S. Signal Service:

The undersigned, a committee appointed by the Michigan State Pomological Society to memorialize your department upon the establishment of signal stations throughout the State of Michigan, would pray: That in your distribution of stations throughout the State, your department would take into consideration

not only the shipping interests of the great lakes, but also the claims which the agriculturists and fruit growers of Michigan feel that they have upon your attention. Your memorialists would with great pleasure acknowledge the great good which has already accrued to the State by the organization and establishment of these signal stations along the lake borders. But the agriculturists and pomologists of Michigan feel not only their interests involved, but their capital at stake, to be as great and as worthy of your consideration and protection. Your memorialists would therefore further pray, that at as early a date as practicable, your department do organize and establish at such points throughout the State as shall hereafter be determined, signal stations for the spreading of alarms at the approach of storms, to the end that crops exposed to destruction and loss may be housed in safety. And to this end we pledge you the co-operation and support of this Society. The memorial was adopted.

The President, Mr. Dyckman, having returned from his flying visit to Eaton Rapids, along with the Treasurer, S. L. Fuller, a recess of ten minutes was taken, at the close of which invitations were submitted from several gentlemen and manufacturing interests of the city, to visit their establishments; also from Hon. E. W. Pendill to accept of a dinner at his house on Thursday, and on motion it was voted to give Thursday forenoon, till eleven o'clock, to this purpose, and to proceed to Mr. Pendill's, at the latter hour.

Prof. R. C. Kedzie, of the Agricultural College, chairman of the committee to whom was referred, at the January meeting, the report of Mr. H. E. Bidwell on the subject of the yellows in peaches, made a statement in reference to the report, and, being the only member of the committee present, submitted the report without recommendation. The Professor referred to the importance of the question at issue, and said it should be carefully considered and thoroughly understood before any decision be made, as it is one involving the comity and good will of peach-growers within the State, besides the question of the continuance and prosperity of peach-growing as an industrial resource of the State. The disease known as the yellows first made its appearance in Philadelphia about one hundred years ago, and appeared to have been aggravated by cropping the soil too heavily, or, in other words, by planting and raising other crops in the peach orchard. It is desirable to know whether the disease exists, and what are its causes and nature, and whether there is any cure for it. Whether it is caused, as some claim, by a microscopic fungus, by atmospheric influences, or by some condition of the soil, ought to be ascertained at as early a period as practicable. The Professor recommended the appointment of a committee which should embrace a chemist and microscopist, to make a thorough examination whether any disease exists in the peach tree in this State, and, if any, the cause and remedy therefor, if possible. The verbal report was accepted and the committee discharged.

Prof. Holmes, in reply to a communication in the Michigan Farmer relative to the Primate apple, by "J. P. T.," submitted a paper with extracts from published reports of 1850, and thereabouts, giving a history of this apple, the first of the summer apples, and which was originally named by its discoverer or propagator as the Rough and Ready, having been brought out at the time of the Zach. Taylor campaign.

Prof. Holmes offered the following resolution, which was adopted :

Resolved, That a committee of five be appointed, to consist of three pomologists, one microscopist, and one chemist, to which shall be referred the question of the yellows in the peach in our State : That they shall visit any district

in which any unusual disease may exist, which may or may not be the "contagious yellows." They shall cause careful microscopical and chemical investigations to be made of healthy and diseased wood, leaves, and fruits; also chemical analyses of soils, which may aid in such investigation, and shall report at the annual fair of 1873.

Mr. J. C. Holmes, from the committee on flowers, submitted a report in which they say they found on exhibition several well-grown, healthy plants from the green-house of N. & C. Chilson of Battle Creek; also, a few plants and a bouquet from the green-house of Mrs. Boehme. The former consists of roses, fuchsias, carnations, callas, Chinese primrose, euphorbia, cuphea, veronica, abutilon, altheas, geranium, etc.; also a pot of scarlet geraniums was specially beautiful; having been cut back, it had grown about six inches high and covering a diameter of about eighteen inches, the whole being covered with blossoms and healthy leaves, so that no bare stems of the plant are seen.

A few choice plants from the greenhouse of Mrs. Boehme, as well as the bouquet, show fine taste in selection and skill in the management of the greenhouse.

Subsequent to the writing of the report a fine collection of cut flowers was brought in by the Messrs. Chilson.

During the afternoon there was placed upon the President's table a beautiful specimen of the "Christmas Rose," just taken from the garden of Mrs. Erastus Worrell, of Battle Creek, and which was found bursting its bud into bloom in the midst of the snow and ice. It formed the center of a circle of wonder and admiration as it lay in its bed of snow.

The President announced the following committees, and the Society adjourned till 7 o'clock P. M.

On Wines.—Prof. R. C. Kedzie, of Lansing; L. G. Bragg, of Kalamazoo; E. W. Pendill and Geo. P. Burrell, of Battle Creek.

On Resolutions.—W. W. Woolnough and Chas. Merritt, of Battle Creek; L. G. Bragg, Kalamazoo; J. D. Husted, Lowell; S. L. Fuller, Grand Rapids.

WEDNESDAY EVENING.

Upon reassembling at a quarter to seven o'clock the President announced the following committee to examine and report upon the "Yellows," according to the resolution adopted at the afternoon session: Prof. J. C. Holmes, of Detroit; Hezekiah G. Wells, of Kalamazoo; S. O. Knapp, of Jackson; Prof. R. C. Kedzie, of Lansing, consulting chemist, the active chemist and microscopist to be added to the committee hereafter.

The Secretary read communications from Judd & Hand, of Hart, Oceana county, relative to the Wagener apple; from H. H. Goodwin, of Ionia, recommending as the best six varieties of apples for Michigan, in his opinion, to be the Wagener, Spy, Russett, Baldwin, Greening, and Jannetting, also expressing his sense of the advantages resulting from thorough organization and research on the part of orchardists and fruit men.

A letter from T. J. Ramsdell, of Manistee, was read, giving an account of the condition of the fruit prospects in that vicinity. Of peaches there will be probably half a crop. Apples are good. The peach blight has prevailed to

some extent, and is a result, the writer thinks, of planting trees on too rich soil.

The paper upon "Flowers," prepared for the Society by Mrs. Jeremiah Brown, of Battle Creek, was then read in a very acceptable manner by Miss Flora Hubbard, and was highly complimented for the faithful presentation of the claims of these "beautiful eyes of the Divine" upon the attention of farmers and agricultural men. A list of flowers which would secure bloom and fragrance in the garden through eight months of the year was given and their qualities fully set forth. The thanks of the Society were extended to Mrs. Brown for the paper and to Miss Hubbard for its reading.

The President—"I take pleasure in stating that the State Agricultural Society, by their action this day, have placed the flowers for exhibition at their next fair in charge of the Pomological Society."

Prof. Kedzie, chairman, presented the report of the Committee on Wines and Cider as follows:

The Committee on Wines and Cider would report that they have examined specimens of wine from Concord grape of 1871, the grape juice being reinforced by two pounds of white sugar to a gallon of the juice.

In the opinion of your committee no substance should be classed as wine which has been reinforced by sugar, or the addition of any alcoholic substance. This position would exclude the specimens shown as Concord wine by S. E. Woodworth. The committee have no reason to suppose that the grape juice in this case has received any addition except the sugar. It is a very good specimen of what is classed as "domestic wine." Currant and raspberry wines are familiar examples of the same class.

No juice is fitted to make wine having the peculiar aroma or bouquet characteristic of wine, which does not contain tartaric acid. The grape, currant, etc., as grown in this climate, contains malic acid instead of tartaric, and this gives us a cider grape instead of a wine grape. In a few cases the grapes grown in this latitude contained tartaric acid, and the juice would give us a wine. The Concord grape, so far as known, did not contain tartaric acid, while the Delaware and Isabella contained the tartaric acid. One of your committee examined some very beautiful crystals of tartaric acid, which formed in some grape preserves. These were from the Isabella grape.

It might be a very interesting experiment to try the influence of tartaric acid or cream of tartar, upon the juice of our ordinary or malic acid grape.

The bottled cider exhibited by Dr. Dickinson was in a good state of preservation, being perfectly sweet and pleasant, but rather deficient in flavor, a consequence of imperfect corking; as it did not contain sufficient carbonic acid to render it bright and sparkling like champagne, as usually seen in bottled cider. Your committee received no information in regard to the mode of its preparation, but infer from a circular accompanying the cider, that the process is a secret one.

R. C. KEDZIE,
L. G. BRAGG,
E. M. PENDILL,
GEO. P. BURRELL.

Another bottle of cider, brought in after the committee had reported, by Nicholas Lang, was much more clear, and of better flavor than the samples mentioned in the report.

Mr. Mott, of Battle Creek, offered the following resolution, which was adopted.

Resolved, That C. J. Dietrich be authorized to collect a full assortment of Alden Evaporated Fruits and Vegetables, arranged in a neat and tasty case, and send to the Vienna Exposition under the auspices of the State Pomological Society.

Mr. Lyon read an essay entitled the History of the Grapes recommended by the Society.

CONCLUDING PROCEEDINGS OF THURSDAY.

The Pomological Society held no session Thursday morning, but the members who desired to avail themselves of the opportunity to visit the most important of the manufacturing establishments of Battle Creek and vicinity, accepted the invitation extended on the day previous, and in the face of a driving storm of cold, snow, and wind, but carefully wrapped in blankets and buffalo robes, made the tour of observation, and finally concluded with a bountiful collation served at the farm-residence of ex-Mayor Pendill, a mile and a half west of Battle Creek, where that gentleman carries on a large farm and dairy.

For the kindness and courtesies shown them by Mr. and Mrs. Pendill, the Society tendered a hearty vote of thanks.

AFTERNOON SESSION.

The Society resumed business at half-past one o'clock, when T. T. Lyon, from the committee to recommend the number of trees and vines of each kind to be planted by orchardists and fruiters, submitted a report which was accepted.

Mr. Schuyler said he got from six to seven pounds per bushel of evaporated fruit from the Vandevere Pippin.

Mr. Hanford spoke in favor of the Primate.

Mr. Lyon would put the Early Harvest first on the list, and not the Primate.

Mr. Hanford held that there was profit in thinning fruit.

The list as recommended by the committee, however, was not attempted to be changed, as it was the general judgment that, taking the main characteristics of the classes named, it was the best that could be settled upon as far as present experience enables those interested to judge.

The President here called the attention of the audience to three cases of insects placed on exhibition by Mr. G. M. Bodley, of Battle Creek, a hard working mechanic, who has made a valuable and striking collection of several hundred specimens.

The question of the protection of fruit trees from winter winds and cold storms was then taken up, and the theory of the protection offered by a belt or tract of woods on the exposed sides of an orchard was advanced by gentlemen who had marked its effects, and at the same time as stoutly denied by others, who gave instances where orchards fully exposed to the most direct blasts of

winter winds lost no more trees from the effects of such exposure than other portions of the same orchard more protected from the storm.

The discussion was opened by D. T. Davis, of Kalamazoo, and Mr. Lyon, of Plymouth, both advocating protection, while Mr. Hanford claimed that trees in an exposed position, did better than those having protection from the wet; having invariably withstood the storms better and borne better than those having protection by an eastern slope.

HOW TO RESTORE TREES KILLED BY FROST.

In view of the fact that thousands of fruit trees, especially the peach, have been injured by the severe cold of the winter, and that many have been killed outright, it will be seen that anything that might indicate a practicable relief from the loss that will fall upon this branch of industry will be hailed with satisfaction. On this subject, which was next taken up by the Society, the views of Mr. Hanford, of Indiana, were called out. He said that in the cold winter of 1856 he had an orchard of thrifty young trees absolutely killed to the snow line, and of course a total loss as far as appearances indicated or experience could suggest. Knowing, however, that the trees had been vigorous, and that their roots must possess considerable power of reproduction, he proceeded to cut off the entire top of every tree that had been killed, and left nothing but unsightly stumps throughout the orchard. The spring came on; advanced somewhat; he watched his stumps with anxiety; found that numerous buds started out from these stubs, put forth their shoots and made a remarkable growth, and in two years he had as good and healthy an orchard as that which had been cut off by the frost. Since that time he had frequently occasion to treat other trees in a similar manner, sometimes cutting off injured branches only, and had almost uniformly had good results. But it is necessary to cut off the injured branches of frozen tops as early as possible after the snow is gone, and always before the sap has begun to ascend the tree.

Other gentlemen expressed their opinions upon this very important point. To the argument that this practice would cut off the present season's product, was answered that in orchards whose trees are badly injured the crop of this year is out of the question; of them the orchard may be saved by a timely application of the surgical knife, and in two or three years be in as good condition as before frozen. A true economy cannot fail to indicate the course to be pursued.

Judge Graves explained an experiment in the protection of young trees from the sun's burning heat in summer and from cold winds in winter, by wrapping the trunk with a cheap, coarse cotton cloth, and the benefit to the trees resulting therefrom.

REPORT OF COMMITTEE ON FRUITS.

Mr. President, and Gentlemen of the State Pomological Society:

Your committee who were assigned to examine and compare the several lots of fruits now spread before you, undertook the delightful task, not with the hope of doing justice to the fruits or exhibitors, but with the desire to do what they could to encourage the cause, if encouragement is needed; which may be a question, since there is in the business of fruit growing an intensely exciting, amusing, and instructive employment. Your committee have carefully examined the several plates and report that there are on exhibition 13 lots, of which we speak as follows:

No. 1 is a lot exhibited by D. T. Fox, of Kalamazoo, showing five varieties, embracing Golden and Roxbury Russet, Swaar, Esopus Spitzenburgh, and Northern Spy.

No. 2. J. A. Davis, of Marshall, seven varieties; Rhode Island Greening, Baldwin, Northern Spy, Wagener, Jonathan, and Smokehouse.

No. 3. J. D. Husted of Lowell, four plates of Wagener.

No. 4. H. Dale Adams, of Comstock, nine plates; two plates McLellan, two Northern Spy, two Baldwin, two Dominion.

No. 5. Geo. Parmelee, of Old Mission, Grand Traverse county, up among the open waters north of the great pine woods, sends by the hands of our Treasurer 45 plates of apples; four of Golden Russet, three Roxbury Russet, one Fall Pippin, four Esopus Spitzenburgh, two Belmont, one Romanite, one Indian Seedling, two Rhode Island Greening, two Wagener, one Peck's Pleasant, one Maiden's Blush, one Ben Davis, two Northern Spy, three Baldwin, two Snow, one Cabasha, two unknown, one Newton Pippin, and one plate of pears, Vicar of Winkfield, in fine order.

No. 6. H. N. Crane, of Emmett, 17 plates as follows: One King, one Golden Russet, one Baldwin, one Yellow Belleflower, two Northern Spy, three Swaar, one Rhode Island Greening, one Munson's Sweet, two Rambo, one Sweet Gilliflower.

No. 7. J. Brown, of Battle Creek, 12 plates as follows: Two Northern Spy, one Munson's Sweet, one Hartford Pearmain, one Red Canada, two Golden Russet, one Swaar, one Baldwin, one Rhode Island Greening, one Black Gilliflower, one Westfield Seek-No-Further, four Jonathan, one Newtown Pippin, one Jersey Sweet, one Blue Pearmain.

No. 8. H. D. Courts, Calhoun county, 7 plates as follows: Two Esopus Spitzenburgh, one Northern Spy, one Peck's Pleasant, one Rhode Island Greening, one Twenty Ounce, one Westfield Seek-No-Further.

No. 9. Alonzo Robinson, Leroy, Calhoun county, 12 plates as follows: One Rhode Island Greening, one Baldwin, one Red Canada, one Jonathan, one Wagener, one Norton's Melon, one Swaar, one Northern Spy, two Belmont, one Ladies' Sweeting, one Rawle's Janet. Two plates of winter pears; one Glout Morceau, one Winter Nelis.

No. 10. Chas. Brown, Calhoun county, 6 plates as follows: One Newtown Pippin, one Spy, one Esopus Spitzenburgh, one Rawle's Janet, one Yellow Belleflower, one Rhode Island Greening.

No. 11. E. Hansel, Emmett, Calhoun county, 6 plates as follows: One Northern Spy, one Rhode Island Greening, one King, three Baldwin.

No. 12. One plate of pears, Inconnue Van Mons.

No. 13. N. & C. Chilson, Battle Creek, 21 plates as follows: Two Northern Spy, two Newtown Spitzenburgh, one Rambo, one Talman Sweet, one Swaar, three Baldwin, one Limbertwig, one King, one Vandervere, one Hubbardston Nonsuch, one Rhode Island Greening, one Pearmain, one Grimes Golden, one Hartford Sweet, one Golden Russet.

One can of Yellow Spanish Cherries, the growth of 1867, brought by H. Carley, of Battle Creek, of fine preservation and very inviting.

The committee recommend as first in order of merit, the collection from the vicinity of Old Mission, Grand Traverse region; second that of the Messrs. Chilson, of Battle Creek, next, that of Mr. Robinson, fourth Mr. Courts, and fifth that of Mr. Crane.

They found, also, a small collection of dried fruits, including apple, tomato, squash, pumpkins, and peach, evaporated by the pneumatic process.

They recommended the thanks of the Society to the exhibitors for their efforts in securing the success of the meeting by their fine displays. The report was unanimously adopted.

THURSDAY EVENING SESSION.

J. D. Husted, from the committee on recommendation of the proportion of each variety of trees in every 100 to be planted by the orchardist, submitted a report recommending a partial list, differing from that reported by Mr. Lyon, chairman of the committee, and specially designed, as stated, for the northern and northwestern portions of the State.

The report was accepted, and with the full report submitted by Mr. Lyon, these two gentlemen being the only members of the committee present, were laid on the table to be printed in the proceedings of the Society.

Mr. Husted then read a paper setting forth the necessity for a proper classification of fruits for the orchard.

The fruit-raiser who disobeys the laws of Pomona will find his returns unprofitable and the end of his labors disappointment. With the masses no branch of industry, perhaps, has been more neglected, or conducted with so imperfect an understanding of the proper means required to produce the desired result as that of growing fruit. In almost every other branch, the principles upon which success depends are carefully studied, and the business reduced to system in all its details. How many of those planting fruit trees at the present day fully understand the character of the trees they are planting, or the capabilities of the soil they have selected for the orchard site. If exposed to heavy winds, those varieties should be selected which adhere most firmly to the tree, and were this fact known and acted upon by the planter, he would make an annual saving of a large percentage of fruit.

Mr. Husted held the opinion that the orchards now in bearing throughout this State would be more than doubled in their present value if they consisted only of the most profitable varieties, or of those best calculated for the purposes for which they may be raised, instead of being, as they now are, a hit-and-miss collection, grading all the way through from good to bad, with decidedly more of the latter sort, all scattered indiscriminately through the orchard, and presenting annually a standing reproach upon the intelligence and care of the planter. Much of this loss arises from improper selection for planting.

Mr. Lyon, from the standing committee on Nomenclature of Fruits, directed at the December meeting to consider the question of the names and identity of certain fruits, made a very interesting report, which was accepted.

Mr. Jeremiah Brown, a venerable orchardist of Calhoun county, read a paper upon apples, in which he indicated in detail the qualities of certain varieties which he had found to be most excellent for certain uses, and presenting valuable food for thought to the Society. Apples have become one of the necessities of life, and are no longer a luxury only. Years ago it was not so, and the incident was mentioned of a thorough farmer and temperance man, a friend of the

speaker, in New York State, who cut down a valuable orchard so that his apples might not be used for cider.

Mr. Brown urged the Society to see to it in every way in its power, that every spurious tree and scion were kept out of the market, and out of the hands of planters.

A. M. Schuyler, of Chicago, the representative of the Alden fruit evaporating process, read a paper on the merits of the plan and excellence of the results reached, and the great good that would accrue to the consumer of our luscious fruit, as well as to the producer, the latter finding a market for the immediate sale of all the surplus products of his orchard, and the former securing an excellent article of dried fruit, clean and wholesome, with none of its good qualities of flavor impaired by the process.

A fine and attractive addition to the adornment of the hall was brought in, being a case of wax fruits exhibited by Mrs. A. B. Powell.

Mr. Fuller, chairman of the committee on resolutions, submitted the following, which were adopted:

Resolved, That the Peninsular railway has done us a very great favor by granting to us half fare over their road, and we hereby thank C. F. Miller, Esq., Superintendent, not only for his favor, but for the prompt and gentlemanly manner in which it was granted.

Resolved, That we hereby express our heartfelt thanks for the warm hospitality shown us by the several citizens of Battle Creek, who have so generously entertained us and provided and ornamented our hall, and to those who escorted us through the town, showing to us their several manufacturing establishments.

Resolved, That to Hon. E. W. Pendill we are indebted for one of those pleasant and genial meetings allotted us rarely in a lifetime. He was the means of affording us a rare opportunity for social intercourse, and an opportunity for witnessing the operations of the advanced husbandry of this day and State.

Resolved, That we hereby thank Hon. A. C. Hamlin for the liberal and gentlemanly manner in which he has treated us through the committee of citizens of Battle Creek.

WHEREAS, N. Chilson, Esq., upon his invitation to this Society to hold this meeting here, promised us the hearty co-operation of the citizens of Battle Creek, therefore

Resolved, That we assure Mr. Chilson that they have more than "filled the bill."

Resolved, That, as usual, we are under renewed obligations to the representatives of the Detroit Free Press and Tribune.

Resolved, That while our thanks are hereby tendered to the exhibitors for furnishing so attractive a feature to our meeting, they are especially given to our good friends at Old Mission for the contribution they have made. Their exhibition is not only an honor to them, but a great credit to Grand Traverse.

A resolution on the part of the citizens of Battle Creek was put by Mr. Mott and adopted:

Resolved, That the thanks of the citizens of Battle Creek and vicinity are hereby tendered to the officers and managers of the Pomological Society of our State, now in attendance, for the able and gentlemanly manner in which they have conducted the exercises of the meetings during the session now about

closing, and for the very able manner in which they have presented their views to the meeting, and especially to the President for the able manner in which he has presided.

The President congratulated the Society upon the success of this meeting.

The Society then adjourned, the next meeting to be held at Kalamazoo in June, in the time of strawberries.

MAY MEETING AT ADA.

ADA, Kent County, May 6th, 1873.

Ada village is located near the confluence of the Thornapple and Grand River, ten miles east from the city of Grand Rapids, by the Detroit and Milwaukee railway. Its water power is good, and here is the celebrated grist mill owned and run by E. Bradfield & Sons; also the Kent county mill, which has been operated by Averill & Co. There are three churches in the town, Baptist, Congregational and Methodist. A new and commodious school house is an honor to the village and its inhabitants. Hon. Rix Robinson, who settled in this section over fifty years ago, resides in the village, and is an honored relic of the first settlement of Western Michigan. The site of the famous hotel, kept in early days by the late Judge Digby V. Bell, also by the father of Judge S. L. Withey, is pointed out as the scene of many a meeting of the early settlers.

Surrounding Ada are the fine towns of Lowell, Vergennes, Cannon, Grattan, Cascade, and Grand Rapids town. Cascade Springs, fast becoming noted for their healing medical waters, are two miles south of Ada. This is an excellent fruit section. During the past winter the "Polar wave" seemed to centralize its influence at and near Ada, for the thermometer was reported as low as 40 degrees below zero, in December last, at this place. Here was thought to be a good place to hold a Pomological meeting in order to test the effects of the cold winter on the fruits and fruit trees, and consequently the May meeting of the State Pomological Society commenced here to-day. The attendance was larger than expected, the interest manifested was commendable, and the exhibition of live fruit buds and the display of fruits has been quite astonishing.

The meeting was called to order by Henry Holt, Esq., Vice President for Kent county, and at Secretary Thompson's table were Messrs. Garfield and Linderman, reporters for the Grand Rapids press.

CORRESPONDENCE.

A number of letters were read. Among them was one from T. T. Lyon, of Plymouth, giving very favorable reports of fruit in his vicinity. The Black Cap, Philadelphia, and Ellisdale Raspberries were alive to the very tip. Geo. W. Bruckner, writing of the Monroe vineyards, said it was scarcely time to come at any definite opinions about fruit prospects, but it was certain that the Catawba and Concord grapes were all right. It was not certain about the Delaware which had not proven so hardy as the Concord.

Converse Close, of Grattan, a fine fruit township, reported that they have every prospect of a good crop of fruit of all kinds, even peaches not excepted. His Early Barnards promised best. This is fifty miles east of Lake Michigan, and is outside of the Lake Shore Peach Belt.

President Dyckman, of South Haven, says they estimate their peaches at full half a crop.

Mr. Waters, of Spring Lake, sends word that the prospect brightens and they expect some peaches.

A communication from J. N. Stearns, of Kalamazoo, details the preparations being there made for the June meeting. They are to have essays, poems, fine exhibition of small fruits, music, flowers, and a generous invitation of hospitality is extended to all. The date of the festival can not yet be definitely decided, but will be announced beforehand.

Mr. C. Engle, of Paw Paw, writes that fruit prospects are good there except for peaches. Grapes, pears, quinces, and small fruits promise well.

FRUIT PROSPECTS.

P. D. Sneathen, of South Boston, Ionia county.—There are quite a number of live buds on our peach trees, but we count on no crop, even in the most favored localities. I have no trees entirely killed. Apples promise well. Cherries fair, though the trees are some injured. Pears are materially discolored, but not killed.

G. W. Dickinson, Grand Rapids.—I can only speak of my own premises; there the apples are all right except Baldwins; the wood of these is discolored. Cherry trees will hang full of blossoms. Pears of the varieties White Doyenne and Bartlett, will blossom well. My Isabella grapes are coming out all right as well as my Delaware, and that too without protection.

Wm. Robinson, Vergennes.—Apples with us promise better than for years. Of pears and cherries we shall have a full crop, and there will be some peaches. Grapes appear to be uninjured. This was a fine fruit township. Last year several thousand dollars worth of peaches were exported from the town.

Mr. B. Barclay, Ada.—I am situated on the heights of Ada, and for over thirty years I have not failed in a single season having some peaches, and but in two or three instances of having a good supply; and am going to have some this year, as I have brought buds to testify. Apples and cherries appear all right

J. T. Elliot, of Grand Rapids, could not speak so favorably of the prospects in his locality, and said if he reported, his remarks would be similar to the others, much modified by extreme cold.

Mr. Cook, Grand Rapids.—My Flemish Beauty pears never looked better, and I am going to have a crop of plums.

Mr. Clement and Rev. Mr. Buel, of Ada, reported some fruits severely injured by the cold. Mr. Clement's apple orchard was injured. The tips of his pear trees were killed. This was on the Ada flats.

Mr. Bradfield, Ada.—I have nothing good to tell. My grapes are killed back to the old wood and my other fruit trees are not much better, except cherries, which look well. I have a single small peach tree in a very exposed position, which under the most unfavorable circumstances has survived and is leafing out to the very tips.

Mr. Bradfield believes that a grape that is worth growing is worth the trouble of laying down; two days' work last fall would have protected his whole vineyard, and saved him on his Iona vines alone \$200. Trees that were vigorous last fall, of every variety, seem to recuperate most promptly this spring.

His Concord and Hartford Prolific vines, without protection, were alive and thrifty, while the Delawares, Ionas, and Adirondacks, unprotected, were destroyed back to the old wood.

He said that he believed in cutting back trees injured from frost, but thought this should have been done a long time ago, before the sap had started to flow, as when the sap has once been up into the injured part and returned to the lower portion of the tree, the health of the whole stock is materially diminished by the poisonous influence of the diseased sap. He said that the ends of some grape vines protected by snow were healthy and vigorous, while the main stock alone was entirely devoid of a vestige of vitality. The same was true of some peach and pear trees. There seemed to be sufficient life to swell the buds; still the tree, as a whole, was dead.

Mr. Steele, of Grattan, reported that the fruit in that fine fruit township promised very well. Apples were good, and there would be peaches, grapes, and cherries.

THE ADVANTAGES OF PROTECTION AND SHELTER.

J. P. Thompson then referred to the influence of forests on climate, and to their destruction, and proposed these questions: Are our winters lengthening? Are drouths more common and severe? Is our rain-fall decreasing? He declared that drouth and cold are the two evils with which we are threatened. Humboldt said that men in every climate, by felling the trees that cover the sides and tops of mountains, prepare at once two calamities for future generations,—the want of fuel and the scarcity of water. We need protection, not only for our fruit, but for our wheat; not only for winter cold, but also from the summer heat. We need shelter for our flocks and herds, our dwellings and farm buildings. Protection and shelter were the lessons taught by the past winter. He also mentioned the increasing value of timber, and urged the importance of this grave question.

THE LOWELL NURSERY ALL RIGHT.

Mr. Husted, of Lowell, presented a *Daphne Mezereum* in full bloom; also apple trees from the nursery rows alive to the very tips, and a fine lot of cherry buds. His fruit prediction for his locality was, apples, medium to full crop; pears, two-thirds to medium crop; cherries, three-quarters crop; grapes, Concord, Delaware, and Ives, a full crop; peaches, none; plums, one-fourth crop. His grapes had produced three successive full crops. He declared that the grape in Michigan was a success, and he believed that it would produce larger average crops than any other fruit. Plum trees which had borne two successive crops were most injured. He felt a pride in contemplating the present position of the State as a fruit-producer. The prospect was most encouraging.

Mr. C. J. Dietrich showed, by a letter from St. Joseph, Missouri, that their hopes of a fruit crop there were entirely blasted.

Committees were appointed on fruit and fruit buds. A recess of 15 minutes was announced.

Hon. S. L. Fuller, Treasurer, called on gentlemen to join the Society. The response included all that were not members heretofore.

REPORT ON THE APPLES ON EXHIBITION.

Mr. C. W. Garfield submitted the following report from the committee on apples:

Your committee found a table well laden with fresh apples in variety, and would fain go into ecstasies over the exhibition, describing in glowing terms the beauty in appearance and delicacy in quality of the different kinds presented to us to report upon, but we feel it far more important that we give to you a

catalogue of the fruits and exhibitors, that the Society and the people at large may know what fruits preserve the best, and who care the best for their preservation.

We found from Mr. Dickinson, plates of Baldwins, Blue Pearmain, Northern Spys, Roxbury Russets, and Peck's Pleasants, all very beautiful, but some of them past their prime.

Morris Denison, of Cascade, presented plates of Greenings, Golden Russets, Baldwins, Swaars, and Spitzenburghs.

Mr. J. L. Clements, of Ada, four plates of the most perfect Northern Spys.

Geo. Steele, of Grattan, a plate of Wageners, looking nicely, but injured by the manner of keeping.

Jas. Martin, Grand Rapids, a plate of mixed sorts in a good state of keeping, containing specimens of Baldwin, Gilliflower, Golden Russet, Jonathan, Greening, and Red Canada.

C. J. Dietrich, of Grand Rapids town, a plate of fine Red Canadas, the admiration of the committee.

Henry Holt, Cascade, plates of fine Swaars, Jonathans, Golden Russets, and Cascade apples. We would call special attention to the last named variety, as it was named and given publicity by our Society.

Mr. Husted, Lowell, a plate of fine Wageners, and another of Golden Russets, so called by him, and the kind he propagates from in his nursery. The committee was not united in regard to the name given, a majority agreeing, however, that it was not the Golden Russet of Downing, but all pronounced it a Russet, and of superior quality.

Sylvester Collar, of Ada, shows a plate of typical Golden Russets, large and well preserved.

Your committee considered the exhibition quite an extraordinary one for the season, and would highly commend the success attained by the exhibitors in saving their fruit.

A supply of good wholesome fruit the entire year is a great desideratum, and from the appearance of the table of beautiful apples presented for us to view, we can not but see that we are in a fair way of attaining the desired end. In this connection we would not neglect to notice in capitals an apple shown Mr. Bradfield, which was grown in 1871. We feel we ought not only to commend but to thank the exhibitors for the fine show of apples presented at the May meeting of our Society.

(Signed,)

E. BRADFIELD, Ada,
N. E. SMITH, Ionia,
P. D. SNEATHEN, South Boston,
W. ROBINSON, Vergennes,
C. W. GARFIELD, Grand Rapids.

REPORT OF THE COMMITTEE ON FRUIT BUDS.

A. T. Linderman, in behalf of the committee on fruit buds, reported as follows:

GENTLEMEN,—The exhibition of fruit buds the committee believe to be somewhat unexpected and surprising in consideration of the fact that in this section the cold cycle expended its utmost strength.

Henry Holt, of Cascade, brings buds as follows: Yellow Raspberry, good; Doolittle, good; Davidson's Thornless, good; Mayduke Cherry, good; Black Tartarian, good; Clinton grape, injured; Delaware, protected by the snow,

good ; Black Naples currant, good ; Red and White Dutch currant, good ; Madelaine pear, wood badly discolored ; Bartlett, good ; Siberian crab apple, good ; Baldwin, Yellow Bough, William's Favorite, Twenty Ounce, and other apples, good ; seedling of the Clinton grape, good.

P. D. Sneathen, South Boston, Ionia county, brings three sorts of pear scions, good ; Black Tartarian cherry, good ; Governor Wood, good ; peach buds, good ; Smock, good ; Early Richmond cherry, good ; Mayduke, good ; Late Duke, good ; apples, good.

Mathew Hart, Boston, Ionia county, peach buds of all sorts, good.

N. P. Husted, Lowell Nursery, three sorts of cherry, good.

James H. Martin, Grand Rapids town, Mayduke cherry, good ; peaches, injured ; pears, dead ; Duane's Purple plum, good ; apples, good.

Wm. Robinson, Vergennes, brought a fine lot of peach buds. Early and Late Crawford, good ; Red Cheek Melacatoon, good ; Early York, injured ; apples, good.

B. Barclay, Ada, exhibited a beautiful twig of the Royal Kensington peach, very good ; Early Crawford, wood good, fruit buds dead ; Late Crawford, some buds good ; Hale's Early, one-half good.

George Steele, Grattan, exhibited pear buds, good ; Elkhart cherry, good ; apples all good.

Converse Close, Grattan, sent quite a variety of peach buds, Early and Late Crawford, Smock, Hale's Early, Early Barnard, Jacques Rareripe, all good. If the peaches were good he said it was reasonable to suppose his other fruits were good.

N. P. Husted exhibited a Daphne Mezereum plant in blossom, which grew in its nursery row ; also very vigorous three-year-old trees of the Mayduke and Early Richmond cherry, good ; three-year-old Wagener and Dutchess de Oldenburgh apple trees ; nursery stock, good.

S. Collar, Ada, brought fine live buds of the Early and Late Crawford.

Geo. W. Dickinson, Grand Rapids town, had Oxheart cherry, good ; Common Red, good ; Mayduke, good ; Washington plum, dead ; Isabella grape good ; Bartlett, pear good ; White Doyenne good.

The exhibition of fruit buds was creditable, and gave abundant promise of good crops of fruit.

(Signed,)

G. W. DICKINSON, Grand Rapids Town.

A. T. LINDERMAN, Grand Rapids.

BYARD BARCLAY, Ada.

J. L. CLEMENTS, Ada.

J. T. ELLIOTT, Grand Rapids.

The reports were accepted and adopted.

Mr. Barkley asked how he should prevent his peach trees from overbearing.

Mr. Holt.—Shorten in,—cut back one-half of last year's growth ; that would destroy one-half of the fruit buds.

Mr. Fuller.—Thin your fruit,—unload your trees.

Mr. Barkley.—I have tried that and find it hard work.

Mr. Fuller.—You might as well pick off the fruit at one time as another.

Mr. Cook.—It is not likely he will be troubled with overbearing this year.

Mr. Barclay.—I can raise peaches just as well as I could twenty years ago.

Mr. Bradfield.—I think this question of protection for fruit trees needs further elucidation. I am not satisfied.

Mr. Sneathen.—It will be noticed that all the favorable reports for peaches made here to-day *come from the highest altitudes which are not protected*.

Mr. Cook.—It is not true that our cold winters are increasing, or that our drouths are more frequent. We have had both in the past. I can recollect a number of dry seasons and of cold winters since I came to Grand River Valley. The lakes were our protection.

Mr. Husted.—I believe in forest protection. It is the salvation of the country. Strip the State of forests and you destroy fruit culture and wheat culture. All scientific authority supports that theory.

Mr. Bradfield.—Why is it, if protection is so desirable, that my young peach tree, in a very exposed position, has survived the cold winter under such unfavorable circumstances?

The question was further discussed. There seems to be a great diversity of opinion on the subject. It needs thorough ventilation.

Mr. Dietrich said the season was a backward one. He advised that the strawberry meeting at Kalamazoo should be called the third week in June, or about June 24th. The meeting at Benton Harbor, June 14th, last year, was one week too early. Cherries and strawberries were just then beginning to ripen. The Secretary and Mr. Stearns of Kalamazoo were instructed to fix the date.

It was resolved that there was no occasion for discouragement in fruit culture; that this meeting and the exhibition afforded conclusive evidence that the cultivation of fruits was adapted to the soil and climate of Michigan.

Adjourned to meet at Kalamazoo in June.

NOTE.—It will be seen from the above report of the May meeting at Ada that the prospects for fruit at that time, in that section, were good. We regret to say that the prospects were not sustained. The spring buds, in many cases, were the last effort of nature to make a good showing, and never matured fruit. A great number of the trees died, and in fact it was pretty well established that 40° below zero, on the river bottoms, was a little too cold for a healthy and successful season.

J. P. T.

THE JUNE MEETING.

FOURTH ANNUAL EXHIBITION OF STRAWBERRIES AND CHERRIES.

This annual festival of the Pomological Society which is now looked forward to with so much anticipation and remembered as one of the most agreeable features of the fruit season, took place on the 25th, 26th, and 27th of June, 1873, at Kalamazoo, at the Court-House. President Dyckman and the Secretary were present. At two o'clock on Wednesday the 25th, the Society was called to order by the President.

LIST OF DELEGATES.

Detroit—Mr. Greusel, Free Press; Prof. Holmes, R. F. Johnstone, Michigan Farmer.

Spring Lake—D. R. Waters.

Grand Haven—Henry S. Clubb.

Grand Rapids—Prof. Swensberg, W. N. Cook, C. W. Garfield, A. T. Linderman, C. J. Dietrich, E. L. Briggs, Wm. Morison, S. M. Pearsall and wife, Jno. Little.

Muskegon—C. L. Whitney.

Lowell—Jas. D. Husted.

Grand Traverse—Judge Ramsdell.

Ypsilanti—Senator Childs.

Monroe—Rev. Dr. Mattoon, J. M. Sterling.

Cassopolis—W. G. Beckwith.

Lansing—Profs. Beal, Kedzie, and Cook.

Plymouth—T. T. Lyon.

St. Joseph—J. E. Chamberlin.

Kalamazoo—Judge Wells, P. C. Davis, Frank Little, J. N. Stearns, E. M. Potter, Rev. J. R. Ranney.

Chicago—A. W. Buell, Wm. Emery, Prairie Farmer.

Indiana—Mr. Hanford.

Paw Paw—A. C. Glidden.

Battle Creek—Nathaniel Chilson.

Augusta—H. M. Mygatt, J. A. Robinson, J. C. Mott.

The President called for reports from the fruit regions, commencing with

GRAND TRAVERSE.

Judge Ramsdell said a letter from Mr. Parmelee, of Old Mission, would give the best report of the Grand Traverse Region.

The Secretary—Mr. George Parmelee of Old Mission, 200 miles north of

Kalamazoo, writes that strawberries and cherries ripen from the 1st to the 4th of July; crop of both very fair, and strawberries always sure, as they have snow protection in winter and are free from late frosts in spring; never saw better cherries for the season; his oldest cherry trees are four years from setting. The Black Tartarian and Eltons are full; part of the buds of the Yellow Spanish and Kent's Early Black were winter-killed. The better sort of seedling peach trees about here are bearing in proportion to the neglect with which they were treated last year. We have some budded trees with a fair show of fruit, but in the majority the buds were winter-killed, and such of the young orchards (2 or 3 years old) as received high cultivation are nearly ruined. Apples and pears, as usual. We expect the Society to meet in Traverse City in October next.

Judge Ramsdell.—I am not aware of the extent of the report desired.

The President.—A report of all kinds of fruits now growing.

Judge Ramsdell.—*The Apple* in the Traverse region promises a very large crop, being in full bearing. I notice the bark is split in some places, but it does not appear to affect the trees. *Plums*—the crop is very full. My plum trees have made a growth of a foot or a foot and a half this year. *Cherries* are well laden, but the sweet varieties have suffered from frost this winter. I cannot account for the dying down of some of the trees. *Peaches* are spotty. East side of the bay, where the country is level, the peaches are nearly all killed. On the peninsula, where the land is rolling, those on the highest spots are good. *Pears*, a good crop. *Grapes*, we shall have a crop. The Concord, Delaware, Iona, and some others are bearing crops. All of my vineyard I pruned last fall; was entirely under the snow from November to April. *Quinces* were injured some on the tips, but the old wood is sound and there will be a fair crop. *Strawberries* promise an abundant crop. *Wilson's Albany*, just beginning to turn when I left. The *cherries* are yet green. We all planted early cherries which ripened before the raspberries, and the birds take the cherries while waiting for the wild raspberries, their usual food. We are troubled with a worm on the plum tree which is destructive. We tried tar to kill it, but did not succeed, and had to let it take its course. There is no one matter bearing upon the successful culture of tender fruit liable to be injured by late vernal or early autumnal frosts, or severe winter weather, more important than the matter of topographical location. Observations, based upon injuries to the peach orchards in northern Michigan, lead me to believe that those locations which we would select to avoid the late spring frosts are equally efficient in protecting pear trees from winter-killing, where the intense cold occurs in still weather. All through the Traverse Bay region, where the peach trees were on level ground, or in the basins, whether high or low, near the water or far from it, they were badly injured, and where well cultivated almost entirely destroyed, while on the side hills and ridges, having rapid and unobstructed atmospheric drainage to Grand Traverse Bay, or the lake, or any of the inland lakes in that region, the peach trees are not only uninjured but will produce a fair crop of fruit. I account for this upon the same principles that render such localities exempt from spring frosts. Ordinary frosts and extreme cold in still weather are greatly intensified, if not entirely caused, by radiation of heat from the surface of the earth. As the heat passes into space, the air near the ground becomes colder, and if there is no wind and the ground is level, moisture condenses, producing dew. When the temperature is reduced to 32° the dew freezes and becomes frost. If the temperature is reduced still lower, then the sap in the

cells of tender plants,—like the young shoots of the grape,—will congeal, and expanding, burst the cells and kill the shoot. If the night is cloudy, so as to prevent radiation, or if there is sufficient current in the air to mix the lower with the higher strata, no frost is produced and no injury sustained. The effect of a side hill, knoll, or ridge, and especially one having rapid and unobstructed drainage to open water, is to produce such a current of air whenever radiation takes place in still, clear weather. As the air near the surface becomes colder, it also becomes heavier than air higher from the ground, and moves gently down the slope, and warmer air from above takes its place, and thus a continual circulation is kept up so long as there is an opportunity for the cold air to drain off. If there is open water at the base of the hillside, then no cold air will accumulate, as the water will warm it again as fast as it reaches its surface. If, however, it drains into an inclosed valley, after a time it may fill the valley with cold air and raise the frost line up the hillside to a level with the obstruction. In the region of Grand Traverse the very coldest weather always occurs in clear, still, cold nights, and especially was it so during the past winter. On or about the 22d of February was our coldest night. On the level land at the head of Grand Traverse Bay the thermometer was 26° below zero; ninety feet higher on the side hill it was 20° , and sixty feet higher on the same side hill only 16° . Peach trees were killed at the base of the hill, and at the upper elevation were uninjured, and are now heavily laden with fruit. My conclusion is that the peach trees and grape vines should, as far as practical, be set upon a side hill towards open water.

The President.—I think this calamity of a cold winter will prove a blessing in disguise. We are seeing it already in these reports.

MUSKEGON.

Prof. Whitney explained that the cultivated portions around Muskegon Lake were between Bear Lake on the north and Black Lake on the south. On the peninsula between Bear Lake and Muskegon Lake Mr. Moulton has a very heavy crop of grapes. Around Muskegon many peach trees are killed. On both sides of Black Lake there is an extensive cultivation of fruit and grapes. All the orchards will bear more or less of peaches. Mr. Rood thought his crop would be a third larger than two years ago. At the head of the lake a young peach orchard is bearing, while an old one is injured, although considerably neglected. The *strawberry* crop has been very fine. *Cherries* are all full. I have lost one of my best trees. The leaves turned yellow and died. The Gov. Wood variety, Mr. Wilde, of Coopersville, says, is subject to this, but that it could be avoided by requiring the tree to commence low to the ground. The apple trees show a heavier crop than I ever saw, and more than ever free from indications of the codling moth. The lowest point of the thermometer was at 11 o'clock one day; was 13° below zero, and a stiff wind was blowing. The thermometer went down and the wind went down with it.

SPRING LAKE.

Mr. Waters.—We are not largely engaged in fruit, except peaches, in Spring Lake. *Strawberries* were injured; *Raspberries* a very large crop; *Apples* and *Pears* full. The Kentish or Richmond cherries are very full. Of other varieties I cannot say much. When at Lausling, I reported our buds all right, but January 29th the thermometer went down to 19° below zero, and on that day our peach trees must have been injured. Were I called upon one month ago, I should have made a very favorable report; the trees were in full blossom, and

those very trees are now dead. Some trees are dead by girdled dead bark. I do not know the cause. It has been suggested it was caused by cold. But the part exposed to the cold is alive, while that portion which is dead was covered with snow. Some trees on elevations are dead, while those on the low lands are alive; while on other places those on the elevations are alive, and those on the flats are dead. I cannot account for these differences in the effect of cold on elevations. The best orchard in Spring Lake, known as the "Petty orchard," is well cultivated, and the trees are all right. It has a southeastern aspect. In answer to a question, Mr. W. said: "A young orchard I would not cultivate so thoroughly, but an old-bearing orchard I would thoroughly cultivate."

GRAND HAVEN—CHERRIES.

This locality being next in order, Mr. Clubb's essay on Cherries was called for and read.

ST. JOSEPH.

Mr. Chamberlain.—We have done looking at the thermometer in Berrien Co. We had the thermometer 20° below zero, and yet had a good crop. The coldest time is generally between half past two o'clock and half past four in the morning. We used to watch all night for fear the thermometer would go below 8° or 10° below zero. Last year the drouth was so severe that the meat was shrivelled on the pit of the peach like the skin of an old squaw. One single shower, however, swelled up the peaches, and they had over 200,000 baskets. Then we had this cold winter. We can now report that strawberries were under the snow and we expected to get 25,000 to 30,000 bushels. This drouth, however, has reduced the amount terribly. The curculio has commenced on the cherry, plum, and peach trees. The early Purple Guigne Cherry has been marketed. In regard to peaches, I estimated if the buds matured we should have 600,000 baskets; but since then large numbers of trees have died, and since I have seen how the curculio is at work I cannot estimate the loss. Plum trees have ample crop, but whether we get a crop depends on the curculio. Apple crop is immense. No appearance of codling moth. I anticipate for our fruit region the largest crop we have. Raspberries and blackberries are suffering from drouth. There has been rain in the country, but not in the fruit region. Mr. Ransom took care of the curculio for three years and kept them bottled up. He had therefore arrived at the conclusion that the curculio would live at least three years.

Prof. Cook.—I doubt the conclusion being correct. Insects will keep alive a long time in a bottle, whereas in a natural state they would only live a season.

Mr. Chamberlain.—All I can say is the curculio did live three years in a bottle.

WAYNE COUNTY.

Mr. T. T. Lyon.—Peach trees in Wayne county are either killed or badly injured. Some have blossomed freely, still the pear trees have died, no doubt injured by the winter. A couple of Clapp's Favorite and the Madelaine wholly uninjured, and the Winter Nellis and some other varieties are uninjured. Strawberries a very full crop. Come out of the winter perfectly healthy and sound. My main crop is the Michigan seedling. The Wilson is grown extensively and comes into our village about the 7th of June. The Michigan has not more than one third ripened as yet. I counted 850 blossoms and fruit on one plant. Presume the average would have been 300 to a plant. We

had a drouth lasting to last Saturday. Apples and pears will be an average crop. I cover my grapes all winter. Those who did not have suffered greatly.

Mr. Chamberlain.—I omitted pears from my report. It is a very large crop in St. Joseph this year.

KENT COUNTY.

Mr. Jas. D. Husted.—The coldest day noticed last winter, December 24, mercury stood 24° below zero at 8 A. M. This extreme cold temperature, followed as it was by several periods of long continued cold, had the effect of drying out as well as freezing out the vital forces of the trees. All feeble trees injured. The cool damp spring weather following, especially during the month of May, aided to conceal, and in some degree to mitigate the effects of winter.

The continued dry, hot weather of the present month has developed most of the evil effects of the past winter's extreme cold, and enables fruit growers to understand more correctly the true condition of their orchards. Apple orchards on favorable situations and soils are but slightly injured, and will produce two-thirds of a crop of fruit. Several varieties that bore heavy crops last year, although blossoming and setting full, dropped most of the young fruit. Many apple orchards standing in valleys or bottom lands, on light, thin soils, or where from any cause a late unripened growth of wood was made, are more or less injured by winter, especially those varieties not strictly hardy, and will not on an average produce more than half a crop of apples. Among the varieties that proved quite generally hardy are: Golden Russet, Northern Spy, Talman Sweet, Wagener, Red Astrachan, Keswick Codlin, Duchess Oldenburg.

Pears.—The same remarks will apply to pear orchards, except we cannot yet so fully determine the amount of damage by the severe freezing, for blight will follow to some extent and show itself through this month and next. The hardy varieties of the pear are not so clearly defined as with the apple. The Vicar and Burre Claigeass are the most injured, and Bartlett and Clapp's Favorite, are as hardy and more productive than Flemish Beauty. On the whole, pear culture, both with dwarfs and standards, looks to me encouraging.

Peaches.—Frozen back to some extent; none lost, but cutting back the tops one third has caused a healthy growth of leaves through the body of the tree, though these are producing no fruit, while other orchards, not cut back, are many of them bearing a thin crop of fruit. The most hardy varieties are Hale's Early, Hill's Chili, Old Mixon-Cling. The next in rank are Barnard, Crawford's Early, and Late. The Old Mixon-Free we have not in bearing.

Plums.—Plum trees are injured as severely as peach. The hardiest are: Lombard, Red Egg, Seedling,—not named,—and Canada Egg. These varieties are bearing a half crop,—other varieties a few scattering fruits. Curculios destroyed in seven jarrings, extending over a period of fourteen days.

Cherries.—Of the sweet varieties, the trees are injured to some extent by winter; but these are bearing better and larger crops than the Dukes and Morrellos, while many large trees of the later varieties are injured by winter, and without fruit.

Grapes.—Concord comes through winter the only variety uninjured; growth healthy, and is worth, to the mass of cultivators, all the other proved varieties combined. All other good varieties are either killed or badly injured to the snow line, while the branches lying on the ground during the winter, and protected by snow, are vigorous and fruitful,—another proof that some sort of covering for the grape vine through winter is needed, and this plan, put in

practice, will enable us to grow the fine varieties as well, and with safety and profit. The tendency of all fruit trees to remain barren, or else drop their young fruit the following year, after bearing heavily, has been increased by the unusual cold of last winter, and is observable in nearly all orchard crops. The trees mostly injured are those enfeebled by old age, over-bearing, or those with neglected culture, or situate in soils or situations unfavorable; hence, the real loss is not as great as at first appears. Many weak and tender varieties have disappeared and will be replaced with others of more hardihood and vigor. These latter have passed through the trial unharmed, and remain to encourage and reward the man of toil for his labors.

Our general nursery stock never went into winter in better condition. It came out this spring with very little injury, and has given general satisfaction. Our sales were larger this last spring than at any previous time. We have now 150 acres of growing stock, uninjured in any way, and of vigorous, healthy growth. Young peach buds and yearling apples by the hundred thousand, with but very few missing. We make this statement at this time, because papers at Battle Creek and Chicago reported the stock at Grand River Nurseries badly winter-killed, and this evil report was freely copied into various papers throughout the whole country. The public, and even our friends were apprised of our misfortune in advance of ourselves. These reports, though false, have a tendency to create and spread a wrong impression to our prejudice, and it is no more than just the press make the correction necessary to place our business in a proper light before the public.

KALAMAZOO COUNTY.

Mr. D. T. Fox.—I think we are going to get a fine crop of apples. The Baldwin is showing the least fruit. I have a Baldwin tree six to eight inches through, leafing a little, with some sprouts starting on the body. Other varieties are uninjured. This is my Baldwin year. Two years ago I got over two hundred barrels. This year I will not get thirty barrels of Baldwins. Where my Baldwins are most killed is at the southwest corner. There are two trees killed there. The next row seems uninjured. The Baldwins that have the least protection have very little fruit on them. I have been as far north as Clam Lake and saw a good many orchards injured. In St. Joseph there are some orchards injured. Peach trees are killed, except such as I cut back. Sour cherries are doing best. The sweet cherries very few. Strawberries have been badly dried up for want of rain. Where our orchards have been protected west and northwest by forests, the orchards are less injured.

JACKSON COUNTY.

Mr. S. O. Knapp.—In our county there is a good deal of fruit grown, yet there are few who make it a specialty. Not because the soil is not adapted to it, but I cannot say why it is so. The apple crop is up to an average. The pear crop about an average. The plum trees do not seem to be affected by the winter. In some instances the trees bear a good crop without protection. The use of Paris green has been tried with success against the curculio. The yellow Spanish cherry has proved the most hardy. Grapes I lay on the ground, not covering them. This has protected them except the Ionas, which were killed when laid down. I do not think as highly of the Concord as some do. The coloring matter next the skin soon decays. Out of half a dozen attempts to make wine of it I have never attained satisfaction. The Doolittle Blackcaps are perfectly hardy and a good crop. The Minnesota Grape was not laid

down, but it blossomed before anything else. I concluded there was nothing to fructify them, but I could find no blossom to fructify them at the right time. It is a wild grape I got up at Minneapolis.

Judge Wells inquired as to destroying the curculio by using Paris Green.

Mr. Knapp.—Just as the trees were getting off the blossoms and setting the fruit, I applied it diluted in water, same as on potatoes. It seemed effective.

WASHTENAW COUNTY.

Senator Childs.—Raspberries are injured. Currants and gooseberries some injured. Peaches generally killed, sprouting out a little, but tops killed. As far as grapes are concerned, I think they are injured to a considerable extent. Apples will be a large crop. I have Baldwins with a heavy show of fruit. Also the Golden Russet and Northern Spy, not as heavily laden, but trees are healthy; I have seven. No apple trees killed by the winter. The cherries are small. The sour cherries turned out finely. Of sweet cherries I have not succeeded in raising a pint in twenty years. Cherries will not be a full crop.

BARK BOUND CHERRY TREES.

A. T. Linderman.—I desire to add a supplement to Mr. Clubb's article on Cherries. The bark runs around the tree, and it is necessary to slit up the bark to prevent its exuding gum. By cutting the bark lengthwise it would relieve the tree. In slitting bark I have seen it in five minutes open one-fourth to one-half an inch.

Mr. T. T. Lyon.—It seems to me we ought to be careful in a statement before we allow it to go to the public. I have tried the slitting process. If the inner bark becomes ruptured there will be an injury that will cause the gum to start. Sometimes it leads to the splitting of the tree. We all observe the tendency to open when slit to get a more rapid growth. Some idea prevailed that the tree was bark bound. I never knew a tree but ruptured its own bark when necessary. Artificial slitting often results in exuding gum. The tree is sure to go by the board when it begins exuding gum. The root underneath becomes dead.

Mr. Linderman.—I intended that the slitting should only be through the outer ligament. The trees I have seen it tried on were six or eight inches through.

Mr. Lyon.—I never knew trees but would sooner or later slit the outside bark.

MONROE COUNTY.

The Rev. Dr. Mattoon.—The apple, the pear, the grape, and the quince are the staple fruits of Monroe county. We do not pretend to raise peaches. We buy them from St. Joseph at \$7.00 a bushel. The grapes we grow are the Concord. This is the money grape, and the people's grape. It is a good big grape. We have two hundred acres in vineyards. Our Concord grapes are not injured. You find more fancy grapes on walls for families, but our grape is the Concord. It never looked so promising. Some of the hybrids are good. Monroe ought to raise pears. A pear tree stuck down anywhere will grow like a willow. It is naturally a pear country. Peach trees generally killed. Cherries are badly injured. Even many of the Duke cherries are injured. I now allude to the late Duke. The Morrello cherries are bearing a full crop. Particularly the Early Richmond is in full perfection with us. The Donna Maria cherry obtained from Mr. Hathaway, thought to be a seedling of the Early Richmond, is doing well. I was down in Alabama, and they were talking about some nice

apples. Said I, they look like Michigan apples. Well, said they, so they ought, for they came from there; we cannot get them anywhere else. Our pear trees for the first time are being affected. They appear to be bark-bound. Our quinces are a fair yield. The sweet cherries are a very light yield.

INVITATION TO BOSTON.

A letter was read from President Wilder of the United States Pomological Society, inviting the pomologists of Michigan to exhibition of his society, to be held at Boston August 2, 1873. On motion, the President was authorized to appoint delegates to the exhibition at Boston.

Mr. Husted said that the Concord would stand the severest cold of our winters when the wood of the vines have fully ripened in the fall.

INVITATION FROM GRAND TRAVERSE.

Judge Ramsdell asked the society to fix the time for meeting at Grand Traverse in October. It was subsequently agreed that the meeting at Grand Traverse should be on or about October 10, 1873.

OTHER INVITATIONS.

The Society accepted invitations from Messrs. Lawrence & Chapin to visit their foundry; from Dr. Van Deusen to call at the Asylum; from Bragg & Sterns to visit their nursery and take tea; from Erastus Davis to visit his grounds.

COMMITTEES.

The President appointed the following committees:

On Sweet Cherries for Lake Shore.—Messrs. Parmelee, of Grand Traverse; Waters, of Spring Lake; Bidwell, of South Haven; Nowlin, of Benton Harbor.

On Cherries for Central Michigan.—A. W. Slayton, of Graton; J. N. Stearns, of Kalamazoo; P. D. Sneathen, Boston, Ionia county.

On Cherries and other fruits.—S. O. Knapp, Jackson; C. W. Garfield, Grand Rapids; P. C. Davis, Kalamazoo.

On Scions and Fruit Trees.—D. R. Waters, Spring Lake; A. T. Linderman, of Grand Rapids; L. G. Bragg, Kalamazoo.

On Strawberries and Canned Fruit.—Judge J. G. Ramsdell, Grand Traverse; C. L. Dietrich, of Grand Rapids; J. D. Husted, Lowell.

On Flowers and Evergreens.—Prof. C. J. Whitney, Muskegon; Judge H. G. Wells, Kalamazoo; Prof. J. Beal, Lansing.

EVENING SESSION.

At 8 o'clock the convention came to order. Judge Ramsdell and Mr. Whitney were added to the committee to report on proportion of varieties of trees to the one hundred to be set out.

DISEASES OF THE PEACH.

Prof. Holmes, of Detroit, read a long and interesting report upon the subject of "The Diseases of Peach Trees," and many letters received by the committee in answer to inquiries. It was followed by discussion. The committee was requested to continue their investigations and report at the next meeting.

SECOND DAY.

Thursday morning the Convention met at 10 o'clock. In the meantime the ladies of Kalamazoo had made extensive contributions of flowers, which had been handsomely arranged in the room, and there was much additional fruit in baskets, boxes, cans, and on branches. A large additional number of delegates arrived. Quite a large party went to the farm of Mr. E. Davis.

At a little after 10 o'clock Prof. Beal, of the State Agricultural College, gave a very admirable and interesting lecture upon "The Fertilization of Flowers by Insects." It was listened to by a large audience. The lecturer gave illustrations on a black-board before his hearers with rapidity and graphic power.

VISITS.

In the afternoon about one hundred members and friends of the society rode in carriages and omnibuses to the residence of Dr. Chapin, viewing the beautiful grounds and scenery. From there they proceeded to the vinery and grounds of Mrs. Dr. Wheaton, which were greatly admired, especially the vineyard, on account of its neat appearance and vigor of its growth.

They then visited the State Asylum for the Insane; interviewed Dr. Van Deusen, the Medical Superintendent, and inspected some of the rooms, the ventilating apparatus, the kitchen, the laundry, and finally the greenhouse, where they lingered a long while with great interest, examining the plants and flowers.

The party were then escorted to the nursery of Messrs. Bragg & Stearns, which they inspected with much interest. They found hundreds of thousands of young trees in various stages of growth, and especially admired the long rows of apple trees, which occupied some forty acres. They were well on in their second year's growth after budding, and notwithstanding the drouth, all reached from two to three feet in height.

THE FESTIVAL.

Returning to the homestead of Mr. Bragg, the party rested and partook of a repast which was grateful to all the senses and was greatly enjoyed by all. A committee on resolutions was appointed.

EVENING SESSION.

At eight o'clock the convention re-assembled at the court house. The exercises of the evening session opened with a song, "The Present Time," by the choir of the First Baptist Church, which was warmly applauded. Rev. Dr. Mattoon then delivered the address of the evening, on "The Farm and the Garden,"—an excellent discourse, and full of useful hints and eloquent passages.

THIRD DAY.

Convention met at 10 o'clock. Mr. Garfield of Grand Rapids made the following report:

MR. PRESIDENT,—The committee whose duty it became to view the apples and cherries upon exhibition at this June meeting of our society, and award

the premiums upon the same, would respectfully tender the following report and awards:

Upon the first day of the meeting, after hearing about the excessive drouth, and receiving such discouraging accounts of the condition of strawberry fields and cherry orchards, we anticipated but a limited display of fruit, and had decided to rest contented with a good social time and the education that invariably accompanies the discussions and papers before the meetings of the society, leaving out the usual concomitant,—a fine exhibition of fruit. Need we say that the surprise of a table bountifully laden with delicious fruit was to us a most agreeable disappointment. We found in our department apples in variety, of fine texture and quality, and in admirable state of preservation, as well as cherries in the most tempting form, and as we afterwards ascertained, of the most delectable flavor. First we will call your attention to the

APPLES.

William Strong, Kalamazoo, has brought in a plate of Jonathans and another of Golden Russets; the former well colored, and for the period of a year, in fine condition, although, of course, beyond their prime.

J. W. Pierce presents plates of Ben Davis and Northern Spy, both fine keepers and apparently well handled. The Ben Davis, to be sure, is nobody's favorite, but certainly has the undoubted excellence of being a good keeper. The Spys were in prime condition, finely colored, rich, juicy, delicious. While testing this fruit your committee were in no condition to receive testimony as to its quality of late bearing and other objectionable traits of character, for we had undeniable evidence of a weightier argument than any other for the moment, in the delicious flavor of the fruit.

Plates of Ben Davis, American Golden Russets, and Switch Willow were here from H. D. Adam's cellar, of Climax Prairie, all in fine condition.

S. M. Pearsall of Grand Rapids showed a plate of beautiful Roxbury Russets.

J. T. Elliot, Grand Rapids, brought not only a plate, but occupied the whole corner of a table with his incomparable Red Canadas.

CHERRIES.

J. D. Husted, Lowell, presented a fine can of Gov. Woods, fresh, large, and sweet.

D. T. Fox, Oshtemo, a box of Black Tartarian.

W. H. Hanford, Bristol, Indiana, 8 boxes, containing several good varieties.

P. C. Davis, Kalamazoo, box Black Tartarian.

D. R. Newton, Cooper, 12 boxes beautiful cherries, containing several varieties.

H. Dale Adams, Comstock, a fine collection, containing 14 varieties.

The committee had no hesitancy in pronouncing the following awards:

Best collection apples, J. W. Pierce, Kalamazoo.

Best plate single variety, J. T. Elliot, Grand Rapids.

Best collection cherries, H. Dale Adams, Comstock.

Best single variety, D. T. Fox, Oshtemo.

With regard to single variety of cherry, the test was between Mr. Husted's Gov. Woods, and Mr. Fox's Black Tartarians. The former were the largest and finest of their kind, but the variety precluded the idea of awarding a premium.

The collection of Mr. Adams contained the Early Purple Guigne, Cleveland, Napoleon, Holland and Great Bigreau, Burr's Seedling, Reine Hortense,

May Duke, Yellow Spanish, Elton, Black and White Hearts, Black Eagle, and Black Tartarian.

We would take occasion to add our tribute to the good things said of the cherry, but Mr. Clubb has spoken so earnestly and well our convictions, that we will only add to our report, by way of remark, that we feel gratified with the exhibition before us, and congratulate the exhibitors upon their success in obtaining and preserving such commendable varieties of our well landed fruit—the cherry. Although not precisely within the domain of the committee, we would still call special attention of all in attendance to the fine frame of fruit so perfectly preserved by the Williams process, and we trust, Mr. President, the originator of the system, who is with us, will be called upon to explain his system. Respectfully submitted.

S. O. KNAPP, Jackson,
P. C. DAVIS, Kalamazoo,
C. W. GARFIELD, Grand Rapids.

Report accepted and adopted.

HOW PEACH TREES ARE KILLED.

Mr. Linderman of South Haven.—I am the worst sufferer from the late severe winter of any fruit-grower in South Haven. I plant early in the spring, as deeply as I can plow. I then cultivate during the summer. I use a hoe where the cultivator cannot reach. I cultivate thoroughly. In the spring I made a favorable report. On the 20th of May I found I had lost three-fourths of the crop. I clear away the dirt from the roots to destroy the grubs. Last September I did this as usual, leaving the collar of the roots bare. The snow came before I expected, and I had no chance to return the earth. The wind blew the snow off some of the trees, when my trees began to fail, and I examined the cause. Out of 1,046 trees I expect to save 200. I have lost the 80 per cent and shall save 20 per cent. Some of my neighbors say I killed my trees by kindness, but I say no; the buds were good, the blossoms and leaves came out, but the collar of the root being girdled by the freezing and thawing where I exposed them, when the sap in the tree was exhausted the trees failed and died. Mr. Griffin was caught in the same way, and lost as badly as I did. Next time I will have the earth back before winter. I have a good crop on the trees not so exposed, and I am engaged in thinning out the fruit on those trees.

Mr. Hanford was called on to give the names of his cherries. He spoke of the Early Richmond as the most profitable variety for market purposes; another name is the Early May, but we call it the Early Richmond. The Marzell is a good cherry with us; has a leaf $10\frac{1}{2}$ inches long. The sweet cherries are almost a perfect failure. A cold storm causes the bark to open and the tree dies. The bark forms a ligature. I cut just through the outside strong bark; the gash opened very rapidly. After that I never lost a tree till this winter. The dwarf cherry makes a very pretty ornamental bush. I put them sixteen feet apart, and now the limbs touch, in six or seven years from planting. When my trees are far enough apart I plant rows of raspberries, which pay for cultivating the land. On those trees that were dead I held a *post mortem* examination, and the verdict was, died from worms. I never knew before that the peach worm would ever trouble cherries; but I can find no difference, his work being almost identical.

FLOWERS.

Prof. Whitney, of Muskegon, made some pertinent remarks upon flowers. He gave directions for making bouquets,—what flowers, climbers, etc., to be used for hanging baskets. He had before him a large variety of flowers, to which he referred by the botanical names, and selected those which make up the prettiest bouquet. He wished farmers would give more attention to embellishing their homes with flowers, and alluded to a remark made by Senator Childs yesterday.

Senator Childs followed the Professor in remarks in which he supplemented the ideas of that speaker. He made a strong appeal for the farmers, and those living in the rural districts, to cultivate and make more free use of the flowers, of landscape improvement, lawns, and beautifying of rural homes. The Senator's speech was greeted with hearty applause at its close.

INSECTS INJURIOUS TO STRAWBERRIES.

Prof. Cook, of the State Agricultural College, then delivered a lecture upon "Insects Injurious to Strawberries." At present, says the Professor, there are but few insects injurious to this luscious fruit; but as such insects, prevalent in other States, may be expected to arrive among us soon, it is well enough for us to become acquainted with them, and thus be prepared to meet them. He described the White Grub, the Leaf Roller, the Beetles, the Slug, etc., and also presented pictures of them. It was an entertaining and instructive oral lecture.

FRIDAY AFTERNOON.

Mr. Williams, of South Haven, gave an interesting account of the Williams Drying Process for fruits and vegetables, illustrated by a model. The cost of an evaporator for a large farm is about \$300. Eight hands,—one man, woman, and boys could attend the evaporator, and manufacture 20 bushels of apples a day, averaging about 6 lbs. of dried fruit to the bushel. Tomatoes yield three pounds to the bushel.

STRAWBERRIES.

• Mr. Husted read the report of the committee on strawberries and canned fruits.

Your committee to whom was referred strawberries and canned fruit, have examined the same and beg to report: We find that J. N. Stearns has on exhibition:

Triumph De Gand, Chas. Downing, Russell, Wilson's Albany, Jucunda, Agriculturalist, Michigan Seedling, Buffalo Seedling, Napoleon III.

E. Merrill & Son, Wilson's Albany, Jucunda, and a seedling.

J. Suttle, Grand Rapids, President Wilder and a seedling.

Linderman, Clark & Co., Golden Seedling.

J. Dunkley, Seneca Chief.

They were all fine and of good quality; and considering the extreme dry weather, much finer than we could expect.

We find that J. N. Stearns is entitled to the premium for the largest collection.

J. Dunkley, for the best plate Seneca Chief.

J. N. Stearns, for the best variety for market, Wilson's Albany.

Of canned fruits but one display is on exhibition, and that from the South Haven Pomological Society, which was superior as to appearance and color.

At each return of these gatherings of our State Pomological Society, we are permitted to look upon the productions of nature on Michigan soil, and at each time are impressed that what is before us is a little more attractive than at any preceding time. So now, as we look upon these tempting berries and fruits, we feel that we truly are a favored people, in a land and in an age that produces such delicious fruit, that does so much towards smoothing the rough and thorny path through this world of troubles; and to be here at this time under such pleasing circumstances, and permitted to partake of such bounties,—and of forming new and endearing friendships, and adding to our social privileges, which are peculiar to fruit-growers, and especially among our Michigan yeomanry.

SCIONS ON EXHIBITION.

Mr. A. T. Linderman, from the committee on scions on exhibition made a report.

Mr. T. T. Lyon raised objection to names given, in some cases, to the varieties.

On motion of Henry S. Clubb, the report was referred to the committee on nomenclature for corrections.

Mr. T. T. Lyon, from committee on lists of fruits, made a report, stating that the list was a compromise rather than a unanimous report.

On a motion to substitute the Wilder for the Diana as a grape for keeping, a discussion arose.

Mr. Hanford spoke highly of the Diana as a keeper, and was opposed to its being laid aside for any newer variety.

Mr. Lyon said the objection to the Diana was its tendency to produce an immense amount of wood and its growing late. Less objectionable, perhaps, in dry season.

The President inquired the difference in period of ripening.

Mr. Hanford said the Diana makes a nice, clear wine.

Mr. Lyon said the Diana is sweet as soon as it begins to color, but it is not ripe. It ripens about the time of the Concord.

Mr. Adams, of Comstock.—I have never eaten a grape in January or February that is preferable to the Diana. I am opposed to making a change until we have more light on the subject.

Mr. J. P. Thompson.—We had the Diana on exhibition at Lansing, in January. We want a grape that will keep well and we have it on the list. Why change it?

Mr. Adams agreed with Mr. Thompson.

Mr. Cook, of Grand Rapids, moved to substitute the motion to strike out the Diana by a motion to add the Wilder to the list instead of substituting it for the Diana.

Mr. Lyon suggested that it be made an alternate.

Mr. Cook accepted the amendment, and it was so adopted.

The report, as amended, was adopted.

RESIGNATION OF MR. FULLER.

The President announced that on account of pressure of business Mr. Fuller

had resigned the position of Treasurer of the Society, and that the executive committee had filled the vacancy by appointing Hon. Henry Seymour of Grand Rapids.

THE PEACH BORER.

Mr. Hanford asked when the borer moth laid its eggs.

Prof. Cook was of the impression that it was done between June 1 and September 1. He asked when and how often the trees were usually examined.

Mr. Hanford.—First of May and again in the fall. Three examinations are good; but few are found in the summer if the borer is removed in May. I have sometimes been obliged to cut two-thirds of the bark of a tree away in a spiral direction. This was by neglecting to examine them in the fall. I never knew so much mischief done as during a winter when they were not attended to in the fall. I have never done this but two years.

THE CHIP PROCESS.

The President.—I adopted the mounding system until I adopted the Ransom chip process of catching bugs. I doubt if it would be worth while for growers to mound up at all, especially if it makes the trees tender. I did not see the force of this till last winter. Now I shall be very slow to adopt the mounding system.

Mr. Hanford.—I will ask the Professor as to the moth that deposits the eggs. Does it travel?

Prof. Cook.—It is a very rapid flyer. It is shown on the diagram.

Mr. Hanford.—That's the bird. [Laughter.]

A DYING ORCHARD.

Mr. Thompson spoke of a gentleman of Kent county, who reported early in the season that he had a very fine show of blossoms and expected a fine crop of apples; but now the trees are all dying. He wished to know whether to cultivate the orchard or let the trees alone.

Prof. Cook knew of several instances of a similar character. He suggested that it might have been caused by late cultivation in the fall.

Mr. Thompson said in this orchard all the trees appeared to be dying except the Red Astrachan, which is a very fine and perfectly healthy tree.

Mr. Hanford came to the conclusion that less manure should be used.

Several other instances were enumerated of similar character.

Mr. N. Cook.—I have seen the same trouble in orchards in Kent and Ionia counties. I found the young trees most affected,—trees five inches in diameter. Most of the trees had fruit, and some of the trees were shedding the fruit. The leaves were small, and, in a few instances, discolored. Mr. Steele, of Grattan, was of the opinion that the trees would recover. Some I have seen never leaved out this summer at all, but died out. These were Baldwins. Russets near by were uninjured. I noticed in the older orchards, where they were under sod, they were not injured.

Mr. Adams.—I think it is the same old story. January, 1856, was a similar severe month to that of January, 1873. The Baldwin and Rhode Island Greening were severely injured and the Roxbury Russets next to them. They were all badly injured. They were cut down and literally killed.

The President.—The older trees,—were they leaved out?

Mr. Adams.—No; very few leaved out. I grafted some of those trees, but it was lost labor.

Mr. N. Cook spoke of Mr. Close, who was a close observer, who noticed a peach tree that was held in check for ten days by the cold east wind. The grapes,—the Clinton and the Delaware,—were uninjured, although exposed all winter.

Mr. Lyon was of the opinion that the effect of the cold was according to the condition of the trees before the winter. It often happens that there is a second or late growth which does not ripen, and that will sometimes lead them to destruction from cold. Judge Emmons had tried coal tar on the trunks, which, with those trees that were not vigorous, proved destructive in the summer, while those trees that were vigorous and hearty thrived. Trees will put out growth in the spring, and when out they may wilt and die, being dead at the roots. Hence our early reports of fruit prospects are often fallacious. I have come to the conclusion that the man who grows grain crops around his trees runs great risk of losing them.

The President.—In these trees that were killed, were they exposed to the east or the west?

Mr. Lyon.—Trees in the most exposed situations are the hardiest.

Mr. Thompson.—This correspondent wants to know what to do with his orchard. It is now nearly July; would you manure or mulch it?

Mr. Lyon.—My time to manure it would have been last fall. It is questionable if it can do any good after this time.

Mr. Thompson.—There are three causes for this destruction of trees and of fruit: first, the hard winter; second, the east wind; third, the drouth. These are the three causes of the trees dying.

Mr. Lyon.—As far as I can judge, no manure could do any good, except for next spring. If the injury is so fatal that it is struck with death, there is no use doing anything. If manure will renew vigor, then put it on.

Mr. Hanford.—If I had an apple orchard in this condition, I should do nothing to it. It cannot take up manure at this season of the year. If anything can do any good, it is a mulch that shall protect the trees from this drouth.

Prof. Cook.—There is no hope whatever if the trees are dead at the roots.

Mr. Hanford spoke of one of the largest orchards in Illinois that had been nearly destroyed.

Mr. Lyon said the late growth in the fall, if it did not thoroughly ripen, would be destroyed by a sharp winter.

Mr. J. D. Husted agreed with Mr. Lyon in this respect. A tree full of sad could not stand a severe winter. Unripened wood is ruinous. The Maiden's Blush ripened its wood well last fall, and it comes out all right. Where the base or root is sound my plan would be to cut the top off and mulch the tree. The remedy is to mulch and prune. The difficulty is the season being late; by mulching now and pruning, a late growth may ensue and danger in winter result.

Mr. Hanford insisted that last fall the wood did ripen good, and he could not see why the death of the trees should be attributed to unripened wood.

Mr. Lyon.—It is not because they were not well ripened, but the drouth is so excessive that the vitality is not equal to stand the effect of the intense heat.

Mr. Husted.—The extraordinary severe winter, 40° below zero, and that followed by a dry season like this, it was not to be wondered at that these effects ensue. There is nothing we dread in a nursery so much as a long spell of cold weather. I would rather the thermometer dropped 20° below zero and then

gradually rise, than that it should continue two or three days at 10° below zero. It is the hardy fruit that we must select. It is the tender varieties that are injured by the winter. Our Baldwins and Greenings, and even Roxbury Russets have been injured, while the Red Astrachan and other hardy varieties are uninjured. We should take this hint in future plantations.

Mr. Clark of Grand Rapids.—An orchard on a western slope near Grand Rapids was injured.

The President.—I hope pomologists will extend their inquiries during summer and be able to arrive at a conclusion. My opinion is that it is root freezing mainly that has caused this trouble, and if so, this can be prevented in future. A fence four feet high protected several rows of my trees.

Mr. Lyon.—It held the snow.

The President.—Yes. It was the snow that protected the trees.

Mr. Husted.—A boy barefoot can not bear the cold so well as one who has good boots on, and it is the same with trees,—when uncovered at the root they would, of course, die.

Mr. Hanford.—If it had not been for the drouth, the trees would have survived the summer, although weakened so. How did the President protect his orchard?

The President.—The trees that were destroyed in my orchard were exposed on the west side, the snow being blown off the roots. The balance of the orchard was two feet under snow all winter.

FRIDAY EVENING.

The proceedings opened by a quartette, "The Song of Summer."

TREE PROTECTION.

Mr. N. V. Cook, of Grand Rapids, read a paper on tree protection.

Solo by Mrs. Evans, "When the Corn is Waving."

Prof. R. C. Kedsie found himself in the position of the preacher who had left his sermon at home. He said, "Brethren, I shall have to depend on the Lord for a sermon. Next time I will be better prepared." The effect of forests on the temperature is marked not alone by influence upon the wind, but upon the temperature of the ground itself. In exposed situations frost extended to a depth of four feet, while in the forest, under the snow, it did not reach a depth of one inch,—sometimes no frost at all. This accounts for the thrifty appearance of wheat that has been covered all over by snow. There is no warmer covering than that of snow. The forest has a great control over the velocity of the wind itself. We have heard to-day about the bad influence of the east wind. I wish pomologists would mark the effect of the east wind upon the apple. On the side exposed to the wind the apple has a black scab, which it is believed is caused by the east wind. The effect is its leaving the ground bare of snow. The good effect of the forest is felt from the even distribution of the snow. When the snow has become cleared away from open clearings you will see spots in the wheat that appears like the effect of fire. It is caused by the frost where the ground was denuded of snow.

The next point is the effect of forests on rainfall. The general storms are

predicted by the signal corps of the War Department. There are local storms, however, which are not so predicted. Humboldt says, by the destruction of the forest man is bringing upon himself two wants: the want of timber and the want of rain. The question naturally arises, why the prairies still have rains? I shall not answer that question, but will refer more particularly to the effect of denuding a country of a forest that has long been protected by timber. From 1841 to 1861 there were 44 inches of rainfall a year; from 1862 to 1871 the rainfall was only 22 inches a year. During the past ten years we have been "clearing up the country," as we call it,—destroying the country, I fear we shall find it. The experience even on islands, the Canary Island for instance, has been the almost total destruction of the fertility of the soil as a direct effect of the destruction of the forest. This experience in France caused the French Government to order the extensive planting of forest trees. In Japan the Yankee idea of destruction of the forest has been introduced until it has become a subject of earnest remonstrance. Prof. Henry, of the Smithsonian Institution, has been obtaining information as to the amount of rainfall. At the Agricultural College we have found the average of the year to be 30 inches. Suppose we find the monthly fall is two and a half to three inches; if this were spread evenly all over the month, it would be of much more value than if it all falls in one shower. The evenness of the distribution is of more consequence than the amount of rainfall. The year 1871 was a year of disastrous drouth, and yet the rainfall was two inches more than in 1867, which was not a disastrous year.

The influence of elevated portions of the State, and the protection of forests is not fully understood. In the first place cold air is heavy. In school houses, where I have recently made observations, I found there was a difference of nineteen degrees between the desk level and the floor. The same difference in a less degree exists in the open air. Mr. Parmelee, of Grand Traverse, has an elevated basin of land, and it was found that his crops always froze there. He tried draining this land, and the cold followed the course of the ditch from the highest to the lowest portion thereof. Cold, like water, follows the course of gravitation. When the temperature on Mount Washington marked four degrees below zero, on the low land around it the temperature was twenty degrees below zero. This law will not hold where we have air in rapid motion. In the winter of 1873, where we had a strong gale, the upland and the valleys suffered alike.

The choir sang "The Corn is Waving, Annie dear."

OFFERINGS TO POMONA.

The President.—Nothing is more grateful to the mind than the reminiscences of the past. The worship of the ancients at the shrine of Pomona was at least a natural and a grateful worship. Why should not we, who enjoy in such rich profusion the blessings which she bestows, render her some tribute of praise? I have great pleasure in introducing Mrs. Dr. Wheaton, who will deliver a poem written for the occasion.

Mrs. Dr. Wheaton read the following ode which she had written to be sung at this meeting. It was enthusiastically applauded.

ODE TO POMONA.

Come, O, my muse, in strains of fire:
Pomona's praises sing;
Bring hither the immortal lyre,
And touch its brightest string!

The feast she's spread for you and me,
Is passing sweet and fair ;
She's plucked the fruit of every tree,
And vineyards rich and rare.

Come, gather round the festive board,
And drive dull care away ;
Let old and young, with one accord,
Make this a joyful day.
She's apples here of every kind,
White, russet, brown, and red,
Except, *perhaps*, that ancient kind
That Eve to Adam fed ;
She's " Maiden's Blush," whose cheeks out-vie
Each blushing maid I know ;
The " Yellow Bough," the " Northern Spy,"
" Baldwin," and " Early Joe."

She's " Purple Plums" and " Bartlett Pears,"
And " Crawford's " luscious peach,
" Iona " grapes and " Delawares,"
All spread within our reach.
She's strawberries of every name,
And melting sweetness, too ;
And all the fruits well known to fame
She offers me and you.

Then raise the voice and touch the lyre,
Pomona's praise to sing ;
Bring hither gems like crystal fire,
And crown her " Harvest Queen."
Long live her servants everywhere,
And blessings on them rest,
And may our Pomologic Fair
Be, evermore, the best.

REPORT OF COMMITTEE ON RESOLUTIONS.

Mr. Henry S. Clubb, from the committee on resolutions, made a report, which he read, and it was adopted as follows:

Resolved by the State Pomological Society in Convention assembled, 1st, That during our stay in Kalamazoo we have been entertained with that liberal hospitality for which the citizens of Kalamazoo have an established reputation ; that we are under special obligations to Messrs. Bragg & Sterns for the delightful opportunity they have afforded us to view their extensive " Union Nurseries," where we found thousands of young trees that are to supply the fruit for the coming period, when fruit-growing will be second to no interest in Michigan ; that we regard their nurseries as models for neatness and careful culture ; their fruit and ornamental trees, notwithstanding the long drouth to which they have been subjected, indicate remarkable thrift, vigor, liveliness, and regularity ; that their sumptuous entertainment under the shade of their beauteous trees afforded an example of generous rural hospitality peculiarly grateful to cultivators of fruits, proving that the pursuits of horticulture are allied to and promotive of the purest enjoyment and noblest pleasures vouchsafed to man by a bounteous Providence ; that to Mr. Stearns, as chairman of the reception committee, we offer our most hearty thanks for his indefatigable exertions for our comfort ; that to Messrs. Lawrence & Chapin we acknowledge our special indebtedness for the pleasure which an inspection of their extensive iron works and the view of Kalamazoo from the cupola of their building afforded ; to Dr. Van Dusen, Mrs. Dr. Wheaton, Mr. Davis and others, we return

our thanks for their courtesies, and especially commend the beautiful vineyard of Col. Wheaton; that to Hon. Delos Phillips we tender our sincere thanks for the use of the organ, the sweet tones of which have added so much to our enjoyment; to Mr. and Mrs. Geo. H. Evans, Miss Carrie J. Curtis, Wm. J. Eaton, Mr. Ranney, and the organist, Mrs. Geo. Finley, we tender our thanks for the delightful music with which they have favored us; that to the sheriff and board of supervisors of Kalamazoo county we hereby return our grateful thanks for the use of the court house freely tendered by them; that to the proprietors of the Detroit Free Press we are under special obligations for the services of their able reporter and correspondent, Mr. Greusel; that to James H. Stone, of the Kalamazoo Telegraph, we tender our thanks for the full and carefully prepared reports of our proceedings; also to Mr. Emery, of the Prairie Farmer, Chicago, and to Mr. R. F. Johnstone, of the Michigan Farmer, for their reports; we also thank the associated press for the full telegraphic reports promulgated by them; we acknowledge our indebtedness to the Chicago & Michigan Lake Shore and to the South Haven & Kalamazoo Railroad Companies for the courtesies extended by them to delegates attending the convention.

2d. That in accepting the resignation of Hon. S. L. Fuller, as Treasurer of this Society, we express our deep regret at the necessity for doing so, and our gratitude for the very valuable and faithful services rendered by Mr. Fuller during the existence of the Society, a period of over three years, during which time his efforts have, in a great measure, secured the success of the Society, and saved it from financial embarrassment.

3d. That after a careful inspection of the fine elevations in the immediate vicinity and surrounding Kalamazoo, we are convinced that there is no inland town in Michigan more favored with territory suitable for fruit culture; that in our opinion almost every description of fruit suitable for this latitude can be successfully grown here, in close proximity to an excellent home market, and with good shipping facilities to the best markets in the world.

4th. That we commend to the earnest consideration of fruit-growers the importance of mixed husbandry in fruit culture as well as in ordinary farm crops. The climate and soil of Michigan is sufficiently diversified to admit of a wide range of fruit, and in following fruit-growing as a profession all fruit-growers should take advantage of this diversity, so that the failure of one or two crops in a season need never produce any wide-spread calamity, nor any ruinous loss, or discouragement to individual fruit-growers.

5th. We recommend a careful selection of varieties from the lists of fruits published by the Society, each planter adapting his list to the peculiar circumstances of his own location, soil, and market.

6th. That we commend to the consideration of other municipalities the excellent regulation of Kalamazoo, which excludes from the streets and roads all live stock running at large. The fruit and ornamental trees which form so prominent a feature of the beauty of the most famous village of Michigan, are preserved from destruction, and fences almost dispensed with, without danger to the most valuable of orchards and vineyards. Parks and pleasure grounds are all open to the public, and are driven through with impunity, and the private pleasure drives enjoyed by all.

By invitation of K. A. Smith, of the firm of Pendleton, Williams & Co., your committee inspected the windmills furnished by them, and were particularly interested in the Stover Automatic Engine, recently introduced here. By a

very simple contrivance, this wheel turns edgewise to the gale whenever an unusual hurricane occurs, reducing the surface presented to the wind from 96 feet to only four feet, and extending or diminishing the surface according to the force of the wind, regulating its speed surprisingly. This is a cheaper mill than the Halladay, and should be tested by all fruit-growers and farmers who require a cheap and useful power, either for irrigation or stock.

Your committee also inspected the Holly Water Works. The inexhaustible supply of water in close proximity is obtained from a well, constructed under the direction of civil engineer Coats. The well is 27 feet deep and 24 feet in diameter, the curb being built upon the surface and gradually sunk, the flow of water precluding any other method of construction. We regard this as a remarkable triumph of engineering skill, boldly conceived and executed under apparently discouraging circumstances, worth a thousand times its cost to the people of Kalamazoo.

The proceedings closed by the performance of "America" by the choir, the audience rising and joining in the anthem.

THE SEPTEMBER PEACH FESTIVAL AT SOUTH HAVEN.

SOUTH HAVEN, September 5, 1873.

The morning of Wednesday dawned here cloudy and threatening, and at about 8 o'clock, A. M., a rain storm set in and continued with little intermission till one o'clock.

During this time, however, the very spirited fruit-growers present, both citizens and visitors, had been busy in arranging and putting up their collections of fruits, so that when the rain ceased the way was clear for those yet to come, who mostly arrived and displayed their collections during the afternoon.

Visitors, as the trains arrived, were received by a committee and assigned places during their stay; the citizens generally showing a very commendable degree of hospitality,—a very necessary condition of things in a place where the hotels would have been quite inadequate to accommodate the large number of persons in attendance upon the exhibition.

The South Haven Pomological Society, upon whose invitation this meeting was held, also extended a similar invitation last autumn which was accepted; and they, feeling the need of a hall for pomological exhibitions, went to work with a will, and within the ten days preceding the time for the meeting, secured the material, and erected and completed the present hall,—a building about 50 feet wide by 100 feet long, with an adequate system of shelving for exhibitions, and also a stand and seating for speakers and audience.

The display of fruits here, when we consider the earliness of the season, and especially the general scarcity, is universally conceded to be exceedingly fine in all departments; and the attendance of persons from abroad is unexpectedly large, embracing a very considerable number of the prominent fruit-growers of the State.

Soon after one o'clock the meeting was assembled at the hall, and called to order by T. T. Lyon, Vice President for Wayne county who presided in the absence of the President, A. S. Dyckman, who, on account of the pressing demands of his ripening peach crop, was unable to be present.

THE EXHIBITORS.

The Secretary was busy at the entry book.

N. P. Husted, of Lowell, forwarded a carefully selected lot of forty-one different varieties of apples, pears, and small fruits, including plums and some very large and well developed bunches of the Concord grape, besides Delaware, Isabella, Ives' Seedling, Creveling, etc., etc.

S. O. Knapp, Jackson, Nyack Pippin and lot of pears.

V. D. Dilley, Geneva, several varieties of apples, including one for name.

Bragg, Glidden & Co., Paw Paw, specimens of nursery stock, consisting of peach trees of one year's growth.

C. Engle, of Paw Paw, has a very large collection of grapes, pears, etc.

E. J. Shirts, of Shelby, Oceana county, a hundred miles north, is here with varieties of apples, pears, and plums.

D. B. Williams, South Haven, has apples, the Belle Lucrative pear, and Dearborn's Seedling.

T. A. Bixby, of Casco, Allegan county, presents twenty varieties of apples and pears, all from young trees, planted six years ago; soil sandy loam, sub-soil clay; has twenty acres in fruit. His peaches are the third crop from trees set out six years ago. He thinks the Barnard best for profit.

W. H. Hurlburt, of South Haven, a good variety of peaches, with several specimens on the boughs to show the effects of overbearing, which is to reduce the size of the fruit. He has 600 peach and 700 apple trees.

G. W. Griffin, of South Haven, has twenty-three acres of land, twelve acres being in fruit trees planted five and six years ago, and shows a large collection of their products.

G. W. Toles, of Benton Harbor, has a fine lot of grapes, pears, and peaches.

A. J. Pierce, of South Haven, ice plant, rose potato, tomato vine seven feet spread, okea and stertia plants, and sugar trough gourd.

Mrs. A. Thompson has a fine display of rare and beautiful flowers.

Master Woodie Law, of South Haven, has three varieties of pop corn.

R. A. Law, Mexican white corn.

A. C. Merritt, South Haven, Lowell pippin and other apples.

Mr. Marshall Hale, of Schoolcraft, who returned this morning from a trip to California, brings in a fair state of preservation, from A. H. Cummings & Co., commission merchants in Sacramento, a basket of grapes and two or three specimens of peaches and pears. Mr. Hale left Sacramento Thursday, August 28th, at two o'clock P. M., and arrived at South Haven this Tuesday morning, September 2d, by boat across the lake from Chicago. He testifies that the California grape, in its freshness, beats all other grapes he has ever laid tooth to, but thinks that the most of their apples, pears, and peaches lack in the exquisite flavor of our fruits. Their plums are luscious, however, and they have strawberries, through careful culture and irrigation, from April to October.

The storm having ceased before mid-afternoon, the veteran, W. H. Gregory, followed by a large number of smaller exhibitors, came in to fill the unfinished space upon the shelves, and by nightfall a multitude more of different varieties of choice fruits, flowers, and vegetables set up their plump cheeks and shiny faces for the admiration of the sight-seers. There was a good attendance also, and with the coming out again of the bright sun all clouds vanished.

Judge Ramsdell, of the Grand Traverse region, brought in some specimens of peaches calculated to open the eyes of the most self-confident among old fruit-growers farther south.

AFTERNOON MEETING.

INCREASE IN ORCHARD PRODUCTS.

The Secretary announced the resignation of W. K. Kedzie as meteorologist of the Society, the Professor having been elected to the chair of chemistry in the Kansas State Agricultural College. The resignation was accepted and a vote of thanks tendered for the valuable reports made.

A communication was received from the Centennial Committee of the Pennsylvania Horticultural Society, requesting the appointment of a delegate

to meet that committee with delegates from kindred societies, in Philadelphia, on September 17th, to take into consideration the best means of promoting the success of the Horticultural Department of the International Exhibition in 1876. Referred to the President with power to act.

In a letter to the Secretary, Mr. George Parmelee, of Old Mission, Grand Traverse county, reports a considerable loss of fruit trees in his peach and apple orchards, but says it was clearly not from the cold of last winter, but doubtless from fault in cultivating and making them grow too much, late in the season. Those peach trees that received medium cultivation are many of them full of fruit; grape vines above as well as below the snow last winter are also full; apricot buds were unhurt and the fruit is now ripe; pears and sweet cherries fruited and grew from terminal buds never better than this year; all which facts show it was not the intensity of the cold which injured his orchards; even in his thrifty peach orchard the trees on the ridges where the snow all blew off were unhurt.

CODLING MOTH TRAP.

Some specimens of trap for the codling moth, exceedingly cheap and simple, were exhibited. They consist simply of a bandage of common brown paper fastened around the trunk of the tree with a string. Under these the moth finds a place for its transformatory process, as under the cloth bandages similarly applied; but here he finds another enemy than man, and here the fruit-grower has an additional and efficient aid in the feathered tribe, which, with unerring instinct, finds the hiding place of the moth through the thin covering of the paper, easily pierced, plucks out the worm and destroys him. The paper bands shown were pierced with many holes through which the birds had removed the pests; and it was stated that hardly more than from one to three moths under the bandages ever escaped the bill of these birds.

The Secretary presented some comparative statistics to show the great increase in orchard products in the towns, counties, and State since 1850, and called particular attention to the importance and desirability of more complete records and reports under these heads.

The total value of orchard products for the year ending June 1st,	
1850, was.....	\$130,522
Van Buren county reported.....	15,008
Berrien county, which was then just coming forward, reported....	6,681

The value of orchard products in the State for the year ending June 1st, 1870, was \$3,537,278, making an increase of nearly \$3,500,000 in twenty years.

Berrien county reported in 1870.....	\$561,641
Van Buren county reported in 1870.....	135,910
Town of South Haven reported in 1870.....	10,310

Now, said the Secretary, to show that these figures are far too low, it is a fact that in this township of South Haven there are single parties who will this year (1873) sell more fruit than was reported for the entire township; and this township will this year produce more fruit than was reported for the whole of Van Buren county in 1870.

The list shows also that the town of Plymouth, Wayne county, stands high in the list of those producing the highest returns in this branch of industry; and it astonishes some of these western fruitmen, who think, perhaps, as the Secretary said, that they have it all to themselves, to find that Oakland county,

away towards the eastern border of the State, stands only fourth, while Washtenaw takes even the third place in the list of prolific orchardism.

The "banner" county for orchard products was Berrien, and the following list shows the product of a number of the most prolific counties:

Berrien	\$561,641
Lenawee	363,828
Washtenaw	209,650
Oakland	205,804
Jackson	155,264
Kent	141,847
Wayne	139,793
Van Buren	135,910
Hillsdale	133,346
Monroe	110,021
Cass	109,689

In market gardening products, Wayne county produced nearly one-half the value in the entire State:

Wayne	\$114,120
Lenawee	35,195
Allegan	12,581
Kent	12,483
Washtenaw	11,589
Jackson	11,040

Mr. Thompson said the main feature of these statistics was their incompleteness. The reports do not give the amount of grapes raised; though the number of gallons of wine is given,—which is 22,015 gallons for the whole State—nor does it give the quantity or value of apples, peaches, pears, small fruits, etc., but only the aggregate of all under the head "orchard products." Why not report apples as well as potatoes? Grapes as well as corn? Let us try and make the census of 1874 more complete and accurate. He thought that proper attention to this subject would soon cause even our grave and reverend legislators to no longer neglect this great interest, but lead them to foster and encourage it.

The paper was ordered printed with the proceedings of the society.

On motion Messrs. Adams, Ramsdell and Knapp were appointed a committee on programme and order of business.

President Phillips, of the South Haven Local Society, in answer to a question, stated that the shipments of peaches from a radius of five miles around this point would exceed 30,000 baskets, of which A. S. Dyckman will ship fully one-third from his own orchard. In answer to a question as to the price of peach lands, he said there was plenty of good land, as good as any now under cultivation, and within one and a half miles of the village, for \$25 to \$300 per acre, the former price, of course, for wild lands, and the latter embracing improvements of considerable value.

A recess of twenty minutes was now taken.

The Committee on Order of Business recommended an evening session at Dyckman's Hall, and that the Thursday morning session be opened at 10 o'clock, when committees would be appointed on flowers, peaches, apples, pears, grapes and vegetables. Remarks by exhibitors would then be in order till noon; and an inspection of orchards in the vicinity of the village would follow

the dinner hour. The evening of Thursday would be occupied in a general discussion of the best mode of cultivation.

On Friday reports of committees would be received, and other business that might come up for discussion or disposition be acted upon.

Mr. Shirts, of Shelby, Oceana county, being called for, gave a brief statement of the fruit culture and prospects of his region, nine miles inland from Lake Michigan, and showed some fine specimens of Hale's early peach, some plums of good size and quality, and stated that apples and pears did well there. They are not yet troubled with fruit vermin, the codling moth and other pests not having yet made their appearance. This point was some 125 miles north of South Haven.

Judge Ramsdell, of Grand Traverse, followed. He held up a fine large peach of the Hale's early variety as an evidence of what that region,—a hundred miles further north than Shelby, the residence of the last speaker—could do in peach raising. Grapes were an excellent crop this year, considering the youth of the vineyards, and he had kept till June, perfectly fresh, in a cellar dug in a side-hill, the Delaware, which is the best for that region. He raised this year, from one and a half acres of four years' old vines, at least 10,000 pounds. The Wagener apple was kept safely till June and the Greenings till May. The apple crop was good, and peaches grown on ridges were mostly unhurt and bear well, while trees on lower situations were killed. Snow falls early, and the ground never freezes beneath it. Grape vines are thoroughly protected by placing them below the snow line, never on the ground, as they would perish with the moisture.

A. J. Pierce, of South Haven, explained the nature and cultivation of the ice-plant, which is so unique and yet so easily grown from the seed as to cause wonderment at its variety. He also favored the meeting with a list of the vegetables and plants he had on exhibition.

Mr. W. H. Gregory, of Pine Grove, not unknown to fame as a plant grower, set forth the maxims that if put in practice will make successful fruit culturists. But there are many drawbacks and many enemies to contest against. In his locality the peach tree was killed by last winter's cold; the apple crop was fearfully cut down by the codling moth, notwithstanding the war they had waged against it, but the pear has done well beyond expectation. It is the staple this year in his vicinity, and of all varieties he had found the Louis Bonne de Jersey the most profitable for market. Referring to the ravages of the codling moth, he says the only way to abate the evil was the concerted action on the part of all fruit-growers, to hunt and destroy it. Wrap the moth trap, whether it be the cloth, the wood strip, or the paper, as shown by the secretary here, about the tree, and carefully destroy all moths found under it, and the work will be done. But a delay of a day or two, or even a few hours, permits, in some instances, the insect to change its form and proceed on its work of destruction. The apple must be preserved, for while the peach, pear, plum, grape, etc., are somewhat of a luxury, and within the reach of comparatively few, the apple is the fruit of the million. As to this exhibition, he said he had brought a small collection, recognizing the fact that everyone ought to do something in this way to show fully the capabilities of the State and of every section of it. "Every little makes a muckle" was a Scotch saying, which if acted upon by all who come here would make a display which even this grand hall could not contain.

At the close of Mr. Gregory's remarks the Society adjourned till 8 P. M., to meet at Dyckman's hall.

In the meantime the visitors from abroad paid a visit to the packing establishment of Mr. A. Smith Dyckman, whose orchard of 3,300 trees promise to far exceed the estimate of ten thousand baskets heretofore fixed as the extent of this year's yield. Mr. D. was offered \$10,000 for the "pick," but preferred to gather the "fruits of his time" with his own hands.

EVENING SESSION.

The evening session was called to order by W. H. Gregory, of Pine Grove, Vice President for Van Buren county; and the session was devoted, firstly, to an essay by T. T. Lyon, of Wayne county, on the importance of timber protection, or forest shelter, to fruit culture; in which, after the discussion of some general principles, the subject was considered mainly with reference to its application to our State, though with some especial reference to the conditions existing along the lake shore. The delivery of this essay occupied about three-fourths of an hour.

The Hon. H. Seymour, of Grand Rapids, Treasurer of the Society, was then introduced to the audience, and gave a short statement of the financial condition of the Society, stating that its only means of liquidating its necessary expenses is by means of membership fees, concluding with an invitation to the audience generally to avail themselves of the opportunity to become members.

Mr. Law, of South Haven, was next called to the stand, and gave an eloquent and instructive address upon the religion of fruit and flowers; after which the session adjourned to meet at Pomological Hall at 10 o'clock the next morning.

SOUTH HAVEN, September 4.

The arrival yesterday afternoon of a large number of veterans of the soil and of the tree, the bush and the vine, had the good effect to supply nearly every vacant place for the reception of fruits and vegetables; while the ladies who came yesterday during the rain and saw too little display of flowers and fine art, came back this morning with "just a little of something," they said, "to fill up and help make a show," and so it has come about that a very creditable and satisfactory state of things exists in this connection. Tables and flower stands are brought into the body of the hall, and plants, flowers, and bouquets multiply till the senses are regaled as by a breeze from a modern paradise, and not only are the products of this locality and clime set forth, but rarities and exotics add their unusual attractions to the scene. Mrs. I. Hoppin sends in specimens of the yam from Jamaica, mammoth cocoa-nuts, sections of the bamboo, and a number of utensils of the population there.

The tables, loaded with specimens of the evaporated fruits done by patented processes, with a result claiming all the advantages of fresh fruits themselves, have been a great attraction during the day.

Packages for the transportation of fruits and its protection during shipment, are represented in great variety, embracing baskets and boxes of various styles, and different fastenings, not a few of which, bearing the stamp of "patent" or "patent applied for," show an inventive genius quickened by the demand.

Mr. A. S. Dyckman, who by a fortunate location and proper industry is king of the peach producers in the West this year, has invented a strong lattice work frame in two parts, upper and lower, between which six baskets of peaches are placed and the whole firmly fastened by two bolts whose nuts may be sealed with wax if desired, to prevent their removal without detection. Thus packed, these crates are handled with facility and may be piled one upon another, and the inconvenience of shipping baskets by rail is to a great extent avoided.

An improved package is shown, being the addition to one of the old style baskets, of a hexagonal cover, the crown of which is some five inches high, adding so much to the capacity of the package. Other baskets have a wood protection in the form of a cross, which is wired to the top. These also may be piled upon each other for transportation.

But little business was transacted in meeting of the Society to-day, most of the members spending a good portion of the time in visiting the fruit orchards in the vicinity, where it was soon found that the peach, however golden, is not the only profitable crop raised here. Pears are in abundance, and trees are loaded literally down with their burdens. Apricots, Nectarines, and other delicate things also flourish.

It is here, too, that figs, if not of Smyrna, at least of Marseilles, are grown in the open air, and one tree is shown in bearing of the second crop this season. Some of the fruit has been dried by the Williams process, and is shown with the thirty odd varieties thus preserved.

Mr. Lyon occupied the chair at the business session this morning.

The Secretary announced the following committees of examination of articles on exhibition:

Apples—Wm. Bort, Niles; C. A. Merriman, Grand Rapids; K. C. Glidden, Paw Paw; E. J. Shirts, Shelby.

Pears—J. N. Stearns, Kalamazoo; Joseph Lanin, South Haven; E. Buel and D. F. Allen, Kalamazoo.

Peaches—C. Engle, Paw Paw; E. U. Knapp, Grand Rapids; S. G. Antisdale, Benton Harbor; H. Dale Adams, Comstock; H. E. Bidwell, South Haven.

Plums—T. T. Lyon, Plymouth; A. T. Linderman, Grand Rapids; L. S. Benham, Eaton; I. C. Mott, Battle Creek.

Grapes—J. G. Ramsdell, Traverse City; H. P. Hanford, Bristol, Indiana; Frank Morse, Angola, Indiana; C. Bryant, South Haven; W. I. Blakely, Grand Rapids.

Flowers and Pictures—Prof. C. L. Whitney and Mrs. C. L. Whitney, D. S. Beach and Mrs. Beach, Marshall; Mrs. M. C. Lonnisbury, South Haven.

Canned, Dried, and Preserved Fruits—Mr. Chilson, Battle Creek; G. W. Toles, Benton Harbor; G. W. Dickinson, Grand Rapids; J. A. Robinson, Battle Creek; Mrs. D. P. Hanford, Bristol, Ind.; Mrs. Clark Shepherd, South Haven.

The committees proceeded to their work, but found considerable difficulty in awarding prizes and premiums to the proper parties in all cases, for the reason that many had modestly refrained from putting their names to their collections, or furnishing the necessary information to the examiners.

Some of these committees made their reports later in the day.

Mr. Lyon, from the committee on plums, reported that they found considerable confusion in the nomenclature of the varieties on exhibition, and that they have found it impossible in one or two cases to satisfy themselves of the names of exhibitors.

The largest number of varieties in any one collection is that of N. P. Husted, of Lowell, Kent county, which contains Coe's Golden Drop, Sheldon, Lombard, Washington, Prince's Yellow Gage, Damson, and one other variety; also a seedling of medium size and excellent profit which is characterized by Mr. H. as follows: "Tree, a strong grower, very hardy and productive," with which qualities the committee deem it worthy of trial.

The next collection in point of merit would seem to be that of C. T. Bryant, of South Haven, containing Bradshaw, Lombard, and Yellow Egg, all of which were well grown. Collections were also exhibited by J. F. Doty, Wm. Gates, of Benton Harbor; also two other small collections by parties unknown to the committee.

A seedling was shown by J. Windoes, of South Haven, which is claimed to be valuable because supposed to be exempt from attacks of "black knot." The flavor, however, will not bear a high commendation.

The committee on peaches reported, through Mr. Adams, that the largest and best collection is by G. W. Griffin, of South Haven, for extra fine specimens of Hale's Early, Wheeler's Early, Barnard, and Yellow Rareripec; second best collection by T. A. Bixby, including, besides most of the above, the Jaques Rareripec, George IV., and Stanley's Late.

The best Hale's Early, single variety, is exhibited by Judge J. G. Ramsdell, of Grand Traverse, and the second by E. J. Shirts, of Oceana county. Best Crawford's Early, I. S. Linderman, Casco, and second best H. J. Linderman, Casco.

The committee say the very best variety on exhibition, in their judgment, is the Early Crawford. They also desire to make special mention of some splendid specimens of peaches exhibited by Mathew Hunter, of Lowell, grown on an elevation of 280 feet above Grand River, showing conclusively that a high location was abundant proof against the lowest range of the mercury during the unprecedented cold of last winter. Exceedingly fine specimens were also grown in Oceana county, under similar circumstances as to location; and still further, noble specimens were shown by Judge Ramsdell, 190 miles north of this place, the finest Hale's Early here shown, in fact. They were grown, the Judge states, on the dividing line between those trees that were killed below and those that were uninjured above. Still finer specimens are grown farther up the ridge, but were not sufficiently advanced for this exhibition. The committee were indebted to Mr. Hale, lately returned from California, for very fine specimens of Crawford's Late, grown in that State, but must say that they are far eclipsed by the same variety grown in South Haven.

Judge Ramsdell, from the committee on grapes, reported that the committee had designated the quality of the specimens examined by them, by numerals from one to four, corresponding to the classes "superior," "fair," "medium," and "poor."

They affix figure 1 to the Ionas, Concords, Delaware, and Ives Seedling, shown by C. Engle, of Paw Paw; to the Concords, Delawares, and Hartfords, from Lawton,—name of exhibitor unknown; to the Concords of N. P. Husted, of Lowell, and one and one-half to his Ives' Seedling, to Toles' Rogers' 15, to Wm. Potter's Ives' Seedling, to the Kalamazoo, Israella, Allen's Hybrid, and Rebecca, of Mr. Davis, of Kalamazoo, to Linderman's Ives' Seedling, to Ohlson's Delaware and Clinton, and to Hartfords and Clintons of parties whose names they could not ascertain; Husted's Delaware and Muscatine, Linderman's Concord and Israella, D. Winan's Delaware and Concord, E. M. Potter's

Israella, Salem, Rebecca, and Hartford; Toles' Martha and Hartford; Kenny Bro's Delaware and Rogers' 19, and Fowler's Concord, Delaware, and Hartford, the No. 2 was awarded.

The committee stated that the collection of grapes brought in by J. M. Sterling, of the Pointe Au Peau Vineyard, Lake Erie, came too late to be examined by them.

The foregoing reports were accepted, the committees discharged, and the Society adjourned till 8 o'clock this evening at the hall.

Mr. Sterling also brought some very fine specimens of a large water lily, known as the Sacred Bean of India, or more properly, the Egyptian Lotus, from the mouth of the River Raisin, Monroe county, Michigan.

Prof. Beal, of the Agricultural College, took occasion to botanically explain the nature of the plant, and to state that it is found in but few localities of the United States. The leaves of the plant brought by Mr. Sterling measured two feet across.

It is proper to State that Mr. Sterling was delayed by misconnection of trains on his way here, and did not arrive in time to place on exhibition his fine lot of Delawares, ripe and sweet, and the other fruits which he had poetically designed to be an offering in marriage of the shores of Lake Erie to the bolder bluffs of Lake Michigan through their kindred products. The nuptials, though heralded with little sounding of trumpets, were duly solemnized, and fixed another tie in the fruitful bond that binds the Eastern to the Western shore.

Mr. C. Engle, of Paw Paw, showed some very fine bunches of grapes, raised on his farm twenty-five miles inland from the lake shore, where they flourish in profusion, and took occasion to sketch his experience in peaches and pears at that point. His orchard is located on a ridge elevated 160 to 175 feet above the lake level, and, strange to say, scarcely any trees were killed by the cold last winter. The products of this region speak volumes for the capabilities of the soil and climate.

THURSDAY EVENING SESSION.

The Society met in Dyckman's Hall at 8 o'clock. T. T. Lyon, of Plymouth, in the chair.

The Secretary read the list of entries that have been made, together with the names of exhibitors.

The committee on plums requested Mr. Windoes, who had a seedling on exhibition, to make an explanatory statement of the fact that the specimens shown were not ripe when gathered, and the committee were thus led into error in pronouncing upon its flavor. Mr. Windoes said the plum had been plucked two weeks too early through the inadvertance of the party to whom he had sold his farm, and this fact accounted for the unfavorable report of the committee, who were not aware of the fact. The plum, which is a seedling of the Green Gage, is said to be second to none, except its parent stock, in quality.

The Secretary announced, from the committee on peaches, an additional report, stating that F. I. Parks, of South Haven, exhibits a very fine basket of Crawford's Early, brought in on the first day of the fair, but not discovered

by the Superintendent of the Hall till after the committee had made their report, but had they seen them they should have reported them entitled to the first premium as best specimen of Crawford's Early on exhibition.

The Secretary also read the report of the committee on pears. They find the largest collection is exhibited by C. Engle, of Paw Paw, who has fourteen varieties, among which are some choice specimens of the leading varieties,—Bartlett, Flemish Beauty, Onondaga, etc.

Dr. Winans, of Benton Harbor, shows three varieties, all fine.

C. T. Bryant, of South Haven, exhibits six varieties, embracing fine specimens of the Flemish Beauty, Louis Bonne de Jersey, and Vicar of Wakefield.

D. C. Loveday, of South Haven, seven varieties, with very fine Duchesse and Vicar specimens.

G. W. Stute, of the same place, six leading varieties, all superior specimens.

Wm. Gates, Benton Harbor, 2 varieties,—fine.

G. W. Griffin, South Haven, 2 varieties, of which the Flemish Beauty were an extra lot.

S. O. Knapp, of Jackson, fine specimens of 5 varieties.

Clapp & Eaton, of Ganges, 3 varieties, all good.

L. H. Bailey, 5 varieties; W. H. Gregory, of Pine Grove, 6 of the leading varieties, embracing some fine specimens.

Linderman, Thompson & Holmes, of South Haven, exhibited 12 baskets of Flemish Beauty and Bartlett, of superior quality, and pronounced by the committee extra No. 1.

P. C. Davis, Kalamazoo, fine specimens of Clapp's Favorite.

N. P. Husted, of Lowell, 8 varieties, all fine.

H. E. Bidwell, of South Haven, 6 varieties, among which were specimens of Bartlett and Flemish Beauty hard to beat.

In addition to these the committee found some collections without the names of the exhibitors.

They state that the Flemish Beauty, Bartlett, and Onondaga varieties appear far superior in all the collections, and they place the Beauty first for the same reason. The committee beg to acknowledge the meagerness of their report considering the extraordinary quality and quantity of the fruit shown under this head, and attribute the short-coming of their praises to a lack of time for elaboration.

Wm. Bort read the report of the committee on apples, which shows that the 95 varieties of L. H. Bailey constitute the largest collection on exhibition. Norman Phillips, of the same place, has the best collection of varieties; Olivia Sprague, H. A. Fowler, and Mrs. I. Hoppin have also fine collections; and there is a smaller but finer lot by G. W. Toles, of Benton Harbor. E. J. Shirts exhibits some fine specimens of Duchesse of Oldenburg, raised by Mr. Lake, of Oceana county. Levi Loomis, of Allegan county, twelve varieties, very fine. C. W. Griffin, of South Haven, six fine varieties. T. A. Bixby, of South Haven, fifteen very fine varieties. J. S. Linderman, ten very choice varieties. W. H. Gregory, of Pine Grove, a very large collection. A fine collection is exhibited by H. Dale Adams, of Kalamazoo, and by E. Howe, of Casco.

A basket of crab apples raised by John Byers, of Bainbridge, and shown by A. A. Old, is worthy of much attention. A name is desired for the fruit, which is as yet known only as a seedling.

Upon the question of naming the crab apple referred to in the report, it was suggested that it be called Byer's Beauty, as the general opinion was that it is worthy a name and due consideration by the Society.

Mr. G. W. Toles, from the committee to whom was assigned the duty of examining and reporting upon the specimens of canned, preserved, and dried fruits, reported that among the number of entries in this department they find a lot of canned fruit exhibited by Mrs. W. H. Gregory, wife of the jolly member of the Society, who evidently believes in having an abundance of good things on hand with which to regale her family and friends. This lot was the largest on exhibition, and several jars were unusually fine.

Mrs. J. H. Wallace exhibited four jars of peaches and one of currants, all fine, and among which is one jar of peaches five years old.

Mrs. R. P. Hare has three jars of peaches, and one of pears, which deserve favorable mention.

Mrs. S. J. Lockwood, two jars of peaches which the committee consider hard to beat.

Mrs. I. Tatro, one jar each of peaches, cherries, strawberries, and currants, and two of raspberries, which appeared to be toothsome, yet as they were closely sealed the committee was unable to resolve itself into a tasting committee of the whole to determine their relative merits.

Mr. H. J. Edgell had eleven varieties of jelly, fine and delicious.

J. F. Doty one jar of horseradish and one of cucumber pickles, which though not coming especially under the head to which the committee were assigned, they deem capable of giving an excellent relish at table.

Last, but by no means least, was the collection of canned fruits placed on exhibition by the South Haven Pomological Society, and which is preserved by a process unknown to the committee, but which has caused it to retain in an eminent degree its original texture and color. This fruit, says the committee, *is claimed* to be delicious to the taste.

The collection of dried fruits and vegetables exhibited by the Williams Evaporating Company, of South Haven, deserves, in the opinion of the committee, more than a passing notice. The proprietors have been laboring for a long time to perfect an apparatus with which they might be able to extract the moisture from fruit and vegetables without destroying the texture or injuring the flavor, and which, though simple in its arrangements, would be practical in its operation. That he has accomplished his purpose, the committee, after a close examination of the apparatus and the resulting products, are ready to verify. The process is simple, yet effective, and the products beautiful, cleanly, and delicious.

One case containing thirty-four samples of different fruits and vegetables, prepared for the American Pomological Society meeting, at Boston, Mass., has just been forwarded to its destination, and the committee say, if Yankee land can produce anything better or more nearly perfect, they should be glad to read the report and adopt their method.

BIRDS AND FRUITS.

Master L. H. Bailey, Jr., of South Haven, read a short essay on birds, into which he had condensed much valuable information as to the habits and food of the common singing birds of this region, and showed how very beneficial they are to the farmer and fruit-raiser in destroying the insect pests that infest their crops.

Mr. Lannin followed with an essay on the "Effect of Fruit upon the Human Economy," arguing that from the eating of fruit, beginning with the first apple, began the rise and progress of the race towards all knowledge and

power and improvement. Without fruits the world would have seen none of the mighty results of civilization.

The meeting then adjourned till nine o'clock Friday morning.

FRIDAY MORNING SESSION.

The meeting of the Society was called to order by Mr. W. H. Gregory, of Pine Grove. In answer to a question by the Secretary, Mr. Bidwell said he understood news had just been received from the Vienna exhibition to the effect that the first prize for dried fruit had been awarded to the Williams Evaporating Company of South Haven.

Mr. Thompson stated there was a general desire to hear some discussion as to the manner of cultivating orchards, the treatment of trees injured by frost, the best localities for planting, etc.

Mr. Bort, of Niles, gave his experience with trees thus injured: He had had orchards hurt by severe cold, as had been the case the last winter, when it was impossible to tell in the spring whether the suffering trees would recover. He had once tried late fall pruning to save them, but had lost every tree so trimmed. He would not trim such a tree till a full flow of sap in the spring, which would save them if there was sufficient vitality left.

Mr. D. P. Hanford, of Indiana, gave items of his experience with trees injured by cold winters. In the very cold winter of 1856 he had 1,500 peach trees injured—the thermometer standing at 36°—which he saved by cutting off the tops of every tree, leaving only an unsightly collection of stumps. A large growth of new shoots was made, and these, injured the succeeding winter, were again cut back. On this growth another year gave him an excellent crop of peaches, and for six years after, good crops were secured—four full ones and two partial crops.

Last spring he treated an orchard badly frozen the previous winter in the same way, and has saved many, though some were too far gone.

He thought it injurious to prune apple trees in the fall, or to cut back and graft too much, to be followed by a very cold winter.

Pears were not injured to a great extent last winter, and raspberries were saved by pruning in the spring.

Mr. T. T. Lyon said his early experience had been limited in this matter, as the trees in his section of the State—Wayne county—had been protected by the forests, as indeed they are to a less extent to this time.

His experience had taught him, however, to take vigorous measures with trees that have been seriously injured by cold. The discoloration of the bark was only the indication of injury to the tree, and if the sap vessels are too much ruptured the tree will die. The only remedy, and one which will be efficient if there is any vitality left in the tree, is a thorough pruning early in the spring. In setting out a new orchard he would never buy trees in the spring for his orchard, but a careful selection in the fall, heeling in and planting at the best and most convenient time the next spring, will insure for that year at least sound and vigorous trees.

Upon the question of the height of trees, he would branch them very low—

even apple trees—a foot or six inches above the ground. Cultivation is easy while the tree is young, without injury to the branches, which will yield readily to the passage of the team, and when large no cultivation is needed, and a plow should never go near the trunk of a large tree. Sod will not form near the stem of a low tree, for grass will not grow in the shade.

G. W. Toles, of Benton Harbor, offered appropriate resolutions of thanks to the citizens of South Haven for their hospitable treatment, and for the opportunity afforded of visiting and viewing their fine orchards, and hoping the prosperity would continue till the fruit region should clasp hands from Grand Traverse on the north to St. Joseph on the south; also to the Chicago & Lake Michigan, Lake Shore, and the Kalamazoo & South Haven Railroads for facilities afforded the Society; also, to the line of steamers between Chicago and South Haven.

Mr. Thompson moved a vote of thanks to the reporters of the papers represented, with the request that they continue their good offices in spreading before the people of the State the value and importance of the great fruit interests that lie as yet so imperfectly known and to so great a degree undeveloped. Adopted unanimously.

Prof. C. T. Whitney, of Muskegon, chairman of the committee on flowers, reported that there are many fine specimen plants upon exhibition without name of variety or owner, which merit the notice of all, and more particularly of the visitors, who have frequently pinched the Rose Geranium and rudely brushed the Abutilon and others.

They call anew attention to the Ice Plant or its kindred of the *mesembrianthemum* family, all suited for rock work and baskets. The seed ripens rapidly and is itself sown.

Mr. Loveday exhibits the prince of house-climbers, the English Ivies, which grow anywhere in the house, light or dark, if not cold.

He also shows the *Amaranthus Solicifolius*, or fountain plant, and some other specimens.

Mr. Windoes has two fine *Begonias*.

Mr. Thompson has a large collection of choice and rare flowers. The very fine *Hydrongis*, by Mr. D. T. Price, which is worthy of cultivation to a greater extent.

The collection of Mrs. Albro abounds in bloom.

The Balsams shown by Mr. A. M. Wilson are choice specimens.

The Oleander of Miss Bradley, occupying a place upon the table, is a handsome plant; and whoever showed the basket of *Mumilorias* need not be ashamed of it. The fine collection of house plants occupying the center are the property of Mrs. Broadwell.

Passing from these plants to the cut flowers, the best bouquet of which is that brought from Kalamazoo by Mr. Lorenzo Bixby. Two fine bouquets of wild flowers attracted universal attention, but have no name upon them.

Mrs. Loveday has a large number of bouquets of choice flowers, and Mrs. A. Hale shows one containing the beautiful Japan Lily and the *Gladiolus*. Many other fine bouquets are noticed without name.

The committee notice at length the specimens of the *Nelumbium Lateum* brought by Mr. J. M. Starling from Monroe, which is known as the Sacred Lotus. Ulysses fed his troops with it, and they were unwilling to leave the country where it grew. Some have called it "the fruit of destiny." The flowers are often twelve inches in diameter.

Of the pictures on exhibition, special mention is made of the oil paintings and the photographs shown by Mr. L. R. Newman; also of the flower and seed wreaths and a fine hair wreath, without name, but brought in to add to the ornamentation and attractiveness of the hall.

Hon. John Whittlesey, of St. Joseph, was unanimously chosen a delegate to meet the Commissioners of Horticulture in Philadelphia on the 17th inst., to confer on the subject of a proper representation of this interest at the World's Fair of the Centennial in 1876.

The hour of eleven o'clock approaching, many of the visitors from a distance began taking their departure, nearly all carrying away some trophy or other from the multitude of good things they had seen, and for a testimony to the fatness of the land. Adjourned.

THE OCTOBER MEETING.

GRAND TRAVERSE, October 10, 1873.

The October meeting of the Society was held at Traverse City on Wednesday, Thursday, and Friday, the 8th, 9th, and 10th days of October, 1873, in connection with the Fifth Annual Fair of the Grand Traverse Union Agricultural Society. The State Society made no exhibition of fruits. The officers of the Grand Traverse Society were as follows:

President—J. G. Ramsdell.

Treasurer—Perry Hannah.

Secretary—L. H. Gage.

DIRECTORS—H. W. Curtis, Jno. Pulcifer, Grand Traverse county; H. H. Noble, R. Knight, Antrim county; J. Porter, Geo. Thompson, Leelanaw county; L. W. Case, L. Judson, Benzie county; H. Miller, Charlevoix county; H. B. Sturtevant, Wexford county; A. T. Kellogg, Kalkaska county; Daniel Reeder, Missaukee county.

THE FRUIT EXHIBITION—FIRST DAY.

The great advantage of an October exhibition is fully manifested by the show of fruit now at the Fair. Never before was there such a display in Northern Michigan. Fruit is the great feature of the show. It eclipses all departments, though the vegetables crowd closely the fruit. But the October sun has done well its work. Such coloring is only the work of the Master's pencil. There is no mistake about the paint on these apples, peaches, plums, grapes, and flowers. The sight is a truly magnificent one, and we congratulate all concerned upon their really fine show of fruit. The pioneers may well feel proud of their work. Ten years ago the modern varieties of fruit were scarcely known here,—now the catalogue is full and overflowing. This exhibition stamps the Traverse Country, meaning thereby the counties bordering on Traverse Bay, as a great apple country.

The apple, the king of fruits, has here found its home, a congenial clime.

On the west side of the Hall, as you enter, the eye meets the well arranged and uniform collection of Hon. Perry Hannah, from his orchard,—said to be the oldest in this section,—which is about a mile from the town. The Baldwin is the leading variety. A long row of this fruit, brilliantly colored, is a sight for a New Englander. Here is a connecting link between Traverse Bay and Plymouth Rock. The Golden Russet has also a shelf to itself. The Rhode Island Greening asserts, also, its supremacy. The King of Tompkins County shows a touch of the true artist's pencil. The Northern Spy is stepping to the front rank. The Early Crawford, Jaques Rareriipe, and Coolidge's Favorite are Mr. Hannah's peaches. Then come eight plates of Concord grapes, five plates of Coe's Golden Drop plums, six plates of Flemish Beauty

pears. The distinguishing characteristics of this collection are common to all in the Hall. First, high and brilliant color; second, firmness of texture; third, the health and freeness from insects. A gentleman from Ohio says the business of Traverse is the production of the Winter Apple. In this connection we must warn our cultivators that they need not always expect exemption from the codling moth and other enemies of the fruit.

The other exhibitors are busy arranging their samples, and we turn to the grand display in the centre of the Hall, on the west side. There is the county collection of Traverse county, and the township collection of the township of Peninsula. For the convenience of those from abroad we will state that the Peninsula township commences near the neck and runs north 20 miles and includes Old Mission, which was the first Traverse City. Geo. Parmelee, H. W. Curtis, B. Montague, Wm. Marshall, Alex. Porter, E. P. Ladd, and other gentlemen have charge of these collections. They extend 40 feet for the township and 35 for the county,—six shelves high. It is our candid opinion that these collections have seldom been excelled in this or any other State.

We will only give the names of the leading varieties: Apples—R. I. Greening, Maiden's Blush, Baldwin, Cogswell, Cayuga Red-streak, Talman Sweet, Westfield Seek-no-further, Esopus Spitzenburg, Golden Russet, Yellow Bellflower, Lowell, Jonathan, Limber Twig, Roxbury Russet, Fall Pippin, Early Harvest, King, Northern Spy, Ben Davis, Autumn Strawberry, Grimes, Golden, Alexander, Fallawater, Gravenstein, Munson Sweet, Bailey's Sweet, Hawley, Wagener, Duchesse of Oldenburg, Chenango, Strawberry, Red Canada, Rambo, Keswick Codlin, Swarr, Belmont, Snow, a lot of Indian seedlings, etc.

GRAPES—Rebecca, Hartford Prolific, Concord, Delaware, Wilder, Iona, Allen's Hybrid, etc.

PEARS—Duchesse d'Angouleme, Flemish Beauty, Bartlett, Dearborn's Seedling, Vicar of Winkfield, Buffam, White Doyenne, Jargonelle, etc.

PEACHES—Seckel, Early Crawford, Late Crawford, Jacques Rareripe, Cool-edge's Favorite, Mountain Rose, Stump-the-World, Hill's Chili, Imperial, Old Mixon Free, and seedlings.

PLUMS—Jefferson, Coe's Golden Drop, Imperial Gage, Smith's Orleans, and seedlings.

The display of crab apples is abundant, and here is the quince as well as the native nuts. We constantly ask ourself, Where did all this fruit come from?

As we left the Hall we met gentlemen from Benzie county carrying in a cartload of fruit; among them were Wm. G. Voorheis, Mr. Hubbell, and Dr. Mack. They will take about 40 feet of shelving, and will be arranged this morning on the east side of the centre.

Leelanaw county is here represented by A. B. Dunlap, Wm. Mebert, and James Lee. To-day will be a busy day for spectators and exhibitors. So fine a display ought to stand until Saturday.

THE FRUIT EXHIBITION—SECOND DAY.

At an early hour exhibitors began to bring in more fruit to the fair, and those who arrived on Wednesday were busy in arranging their samples. Out

of chaos began to grow a thing of beauty. Very soon it was apparent that that this was to be something more than a mere township or county exhibition,—it was assuming State proportions. We have seen many State Fairs that did not approach this Traverse Fruit Fair. All were pleased and delighted, and the old pioneers were proud of their work. Here was the history of Northern Michigan illustrated. Every plate of fruit, every bag of grain, every vegetable was a page of this history, and told its tale of growth and development.

Grand Traverse county was the leader, and as her display assumed form and proportions, stretching across the Hall, all confessed that it was a splendid show.

BENZIE COUNTY.

But the sisters of Grand Traverse county were not behind in their products of the orchard and vineyard. Youthful Benzie county, a ten-year-old in fruit culture, put in a charming appearance. This county is on the lake shore, with Frankfort for its chief harbor and Benzonia for its county seat, which is about 30 miles southwest of Traverse City. This collection was brought by land, and of course found rough traveling, and some of the apples had, consequently, lost their brilliancy. Benzie is a hard-wood county, and fruit culture is a complete success there, the soil producing excellent apples, pears, plums, and grapes. Ten years ago, reader, where this collection came from were dense woods. Mark the progress! Behold the transformation from barbarism to civilization!

From Mr. Voorheis and other gentlemen in charge we gather the following statistics:

Apples—Thirty-five varieties, including the Baldwin, R. I. Greening, Bell-flower, Rambo, Snow, and others.

Pears—Ten varieties, including the Flemish Beauty, Bartlett, Stevens' Genesee, Louise Bonne d' Jersey, Vicar of Winkfield, and others.

Plums—Ten varieties of delicious plums, including the Jefferson, Green Gage, Coe's Golden Drop, Canada Egg preserved in alcohol, Smith's Orleans.

Peaches—Early Crawford, Benzie Beauty, evidently a seedling from the Crawford, Hale's Early, and three other varieties, with some reliable seedlings.

Grapes—Delaware, Clinton, Concord, in all four varieties.

Raspberries—The Philadelphia, Golden Cap, Red Antwerp, Purple Cane, Davidson's Thornless, Doolittle.

Strawberries, currants, cherries, in jars, were other representations of small fruits. "Good for Benzie county," was the exclamation of all delighted spectators.

LEELANAW COUNTY.

We now pass on to another partner in this exhibition, to the collection from Leelanaw county. It was not a whit behind its neighbors, but in some single specimens surpassed all. Here we found Mr. V. C. Miller, of New Mission, of Leelanaw township, 23 miles from Traverse City, with 23 varieties of apples. A plate of Northern Spy was the finest of the show. The Duchess of Oldenberg was a very popular variety, as it was in all other collections,—a productive variety, exceedingly hardy, and a good grower of wood as well as of fruit; here an autumn sort without any doubt. The Alexander, showy, dressy, brilliant, elsewhere rated a number three for quality, was here reckoned as number one. The Sweet Bough, of gigantic proportions, still retains a portion of its summer

flavor. Mr. Miller esteems the Baldwin as the most profitable for his section. It matures well, stood the winter well, is profitable for all purposes. Its acclimation seems complete, though years may develop a tenderness as in older sections of the State. The Flemish Beauty and Bartlett were unmistakable. Quinces were also profitable in Leelanaw.

All these collections are in charge of intelligent gentlemen who are thoroughly posted in their business. Among others we met O. L. White, A. B. Dunlap, and Solomon Steele, from Northport, the county seat of Leelanaw county, 25 miles north of Traverse City. They claim the soil along the streams of that section as a "limestone gravel," and the lake influence with the soil renders the county one of the best in the State for fruit.

Peter Gustaff, of Northport, described his plum culture. He has 75 trees, five years old, that have produced 30 bushels in the last two years, which have found a ready sale at \$3 50 per bushel. He says that the curculio has arrived at Northport, but in his broken German-American way says, also, that by perseverance and attention the Little Turk can be exterminated.

K. Freeman, of Kasson, Leelanaw county, shows an extra plate of Roxbury Russet apples, as well as Bailey Sweet, Duchess of Oldenberg, and Wine Sap.

As we leave the hall we were glad to hear President Ramsdell say the fair must be held fast until Saturday morning. That will give us a chance to see the balance of the fruit. It is idle to expect one to interview such a show in one day.

The grapes are not large. This is said to be on account of the dry weather. Overgrown fruit is not the aim of cultivation, but quality instead of quantity is the consideration. Big Pumpkin Sweets seem to be ignored.

Another feature of these collections is the numerous and apparently valuable *seedlings*. "Unknown" is written upon many plates. The Pomologists are at fault, for they never saw the same varieties before, and many of the old standard sorts came in "questionable shape." The exhibitors must not complain if they do not get names for their children. The authors must come up here and write new books.

THE FRUIT EXHIBITION—THIRD DAY.

Friday, the third day of the fair, found the individual collections of fruit in order though not well divided. Before we pass to them we will speak of the fruit from

ANTRIM COUNTY.

As has been noticed, the fruit on exhibition comes principally from three counties,—Grand Traverse, Benzie, and Leelanaw. Now comes a fourth from the east side of Traverse Bay, Antrim county. Elk Rapids is its flourishing county seat. We find George E. Steele in charge of a fine collection of fruit from this county, consisting of 17 varieties of apples and one of pears. The Baldwin was well colored, and so were the Spy and King. The Rambo was the largest of that sort in the hall, and the Greening was perfection itself. Mr. Steele, who is a surveyor, informs us that seven-tenths of the timber of Antrim county is sugar maple, and that there are miles of water-protected fruit lands in the county.

Mr. L. R. Smith has been a resident of Antrim county for 18 years. He was an old dealer in nursery stock, many years ago, at Grand Rapids. From the nursery at that place, which he sold to G. C. Nelson, Esq., he brought trees to Antrim, and here exhibited the fruit gathered from those trees. Among this collection were ten varieties of pears, chief of which were the White Doyenne and Stevens' Genesee. His apples were the Spy, King, Greening, Fall Pippin, etc. Other gentlemen from Antrim were Richard Knight and J. J. McLaughlin, and their fruit told its own story. The county has a water front on the west, and is penetrated by the G. R. & I. Railroad.

THE COLLECTION OF H. W. CURTIS.

Though time and space warn us to be brief, we cannot close without mention of the fine individual collection of H. W. Curtis, Esq., of Old Mission,—the President elect of the Society for 1874. His Golden Russet was number one. Let fruit cultivators remember what he says about this variety,—that it is the money-making variety for him. He believes in it as a profitable market sort. We recollect hearing Judge Wells, of Kalamazoo, say the same thing. The next three best tested sorts, with Mr. Curtis, are the Greening, Baldwin, and Roxbury Russet. The Tallman Sweet has no superior as a sweet winter sort. He intends to test the Red Canada. Mr. Curtis believes that there is profit in quinces, and he has ten varieties of peaches at the fair; also an assortment of pears, at the head of which is the Flemish Beauty.

THE TOWN OF EAST BAY.

We have noticed the four counties represented, and the two townships competing, Peninsula and Leelanaw, but justice requires us to note briefly the fruit from East Bay, Grand Traverse county. This town, as its name indicates, is on the east side of the Bay, with Acme and Yuba for small villages. There were many individual collections from this town. O. S. Francis, A. T. Allen, W. H. Fife, W. Thacker, W. M. Stites, John Pulcifer, John Black, and other gentlemen whose names appear in the premium list, proved by their exhibitions that East Bay township is one of the very best for fruit in this section of country.

James Lee's collection, from Leelanaw, is truthfully described by the blue ribbon, the first premium badge.

The splendid plate of Delaware grapes, from J. E. Savage, of Old Mission, was number one.

John F. Drew, Sen., Old Mission, was one of the largest and best individual exhibitors. His Bailey Sweet, Snow, Russet, were prime.

The collections of A. M. Smith, 25 plates; Hugh Prouty, 10 plates; A. P. Lancaster, were among the best. Indeed, the question was constantly coming up, How can we decide which was best where they were all so good?

An assortment of apples, peaches, pears, grapes, etc., from "Mount Ramsdell," showed the good culture of the Judge, the persevering, energetic, indefatigable President for 1873.

THE LESSON OF THE FRUIT FAIR.

The moral of this section of the fair was this: *Fewer varieties and larger orchards.* Stick to a few standard sorts, and don't waste toil and time on worthless kinds. Plant orchards of a few winter varieties, and the Traverse section will soon be to Michigan what the Niagara section has been to the State of New York,—THE GREAT HEADQUARTERS OF THE WINTER APPLE.

The display of oil paintings and other pictures is very fine. One drawing, by

William Holdsworth, Jr., is worthy of special notice. It is called "The Pioneers of Traverse City," and has in each corner a portrait of one of the most prominent of the early settlers, viz.: Perry Hannah, Gov. Bates, Cuyler Germaine, and Dr. Goodale. There is a view of Traverse in primitive times,—woods, wigwams, and "the noble red man," squatting around his camp fire. Then another scene of Traverse in our day, and the improvements that have been made by the no less noble white men.

Among other beautiful things we notice a wreath and two vases full of delicate feather flowers; two very curious and elaboratory carved brackets; two handsome afghans; several scarfs, tidies, quilts, knit spreads, and fancy work of all kinds.

Mrs. J. Cram's house plants occupy a large stand, and make a lovely show of foliage and bloom.

Several fine bouquets from Mrs. T. T. Bates' garden, and a gorgeous stand of flowers from Mrs. J. G. Ramsdell's add greatly to the many attractions of the fair.

PREMIUMS AWARDED.

Fruit.—Best peck of Cayuga Red-streak, Jas. Lee; do Baldwins, J. Lee; do. Northern Spy, J. Pulcifer; best peck Greenings, Roxbury Russets, Tallman Sweet, Maiden's Blush, Golden Russet, H. W. Curtis. Chenango Strawberry, L. W. Case.

Best plate of Northern Spy, J. Pulcifer.

Best collection of fruit grown by one exhibitor, variety, quality, and succession considered, Jas. Lee; 2d, W. Mebert.

Best peaches, A. K. Montague.

Best seedling apples, O. S. Francis.

Best plate grapes, J. E. Savage.

Best plate quinces, A. K. Montague.

Best collection canned fruits, Mrs. T. T. Bates.

Your committee would respectfully mention the fine collection of fruit exhibited by Hon. P. Hannah. Also the collections of Messrs. Curtis, Lancaster, Fife, Miller, Dunlap, and others. We also mention fine seedling peaches, raised by Messrs. Dunlap, Lee, and Hurlbut. There were represented in individual collections of apples 62 varieties, besides many not named; also many fine pears, plums, peaches, Siberian crabs, but not entered for premiums.

Committee—W. Mebert, H. O. Mack, L. R. Smith, T. A. Ferguson, H. R. Haight.

County and Township Collections.—We, the undersigned, your committee on county and township collections of fruit, respectfully report as follows:

They find collections on exhibition from Grand Traverse and Benzie counties.

That from Grand Traverse they find a collection embracing 92 varieties of apples, 11 of pears, 17 of peaches, 7 of plums, 6 of grapes, 1 of quinces, 2 of cranberries, 1 of butternuts.

From Benzie county the collection embraced 48 varieties of apples, 9 of pears, 8 of peaches, 12 of plums, 4 of grapes, 7 of raspberries, artificially preserved, 1 of currants, artificially preserved, 2 of strawberries, artificially preserved.

These two collections compete very evenly, so far as the quality of the specimens is concerned, and, moreover, they both embrace the great mass of our best known and most desirable varieties; so that the real difference in the

value of these collections (made up, as such difference is in the main, of varieties of little comparative value) is really less than would at first sight appear. Still your committee were fully convinced that the collection from Grand Traverse county is at least as well grown as the competing collection, and, hence, in consideration of this, and also of the greater number of sorts, they award the premium to Grand Traverse county, represented by Geo. Parmelee, of Old Mission. In doing this they are so impressed with the high quality of the Benzie county collection, as well as with the energy and enthusiasm displayed in bringing it together and placing it upon exhibition, that they take occasion to suggest that if the financial condition of the Society shall so warrant, it may be considered well worthy of a second, or discretionary premium.

The collection from Leelanaw seems to have been entered both as a county and a township collection. Those in charge, however, have chosen to compete for the township premium only, under the impression that the rules of the Society do not permit the same collection to compete in both classes. This collection embraces 56 varieties of apples, 11 of pears, 10 of peaches, 15 of plums, 7 of grapes, 3 of currants in the fresh or natural state.

A collection is also shown from the town of Peninsula, embracing 117 varieties of apples, 20 of pears, 25 of peaches, 7 of plums, 7 of grapes.

Your committee find the same close competition between these collections as has been spoken of in connection with those from counties, and in awarding the premium, as they do, to the town of Peninsula, they, for a similar reason, suggest to the Society the propriety of awarding a second premium to the Leelanaw collection.

In submitting this report, your committee are impelled to express their high gratification at the great beauty and very high quality of the fruit exhibited, and would also indulge the statement of what is to them a very gratifying fact that they have seldom, if ever, either in local or State exhibitions, found fewer errors in the naming of the fruits exhibited. All of which is respectfully submitted.

Committee.—T. T. Lyons, S. O. Knapp, A. T. Linderman, J. P. Thompson.

MEETINGS OF THE POMOLOGICAL SOCIETY.

REPORTED BY HON. D. C. LEACH.

On two evenings of fair days the members of the State Pomological Society held meetings in Leach's Hall. Judge Ramsdell presided at the first, and Mr. Dyckman, President of the Society, at the second.

Secretary Thompson named the five varieties of winter apples which are recommended by the Society as most worthy of cultivation. They are the Red Canada, Wagener, Baldwin, Rhode Island Greening, and Golden Russet. He stated, however, that a larger number of competitors had presented the Northern Spy than any other apple. Mr. Thompson said the Daily Herald had that day asked a very pertinent question: "What apples shall we plant?" and he called upon the gentlemen present to answer it.

Mr. Parmelee, while admitting that the Baldwin had merit, did not think it as valuable as some other varieties. It is not as hardy, and in short, cool sea-

sons might not ripen perfectly. The Northern Spy is better here than in southern Michigan. It comes into bearing earlier and ripens its fruit more evenly. His main objection to the Wagener is that it bears so early and so constantly as to prevent a proper growth of the tree. For commercial purposes he thought the Golden Russet the most valuable. It is among the best of bearers, and when fully matured is of superior quality.

Other parties participated in the discussion. From all that was said a listener would have come to the conclusion that the Golden Russet is entitled to the first place on the list of our market apples, and next would come the Baldwin, Red Canada, Wagener and Greening. We regretted that more could not have been said in favor of the Greening, for to us it seems the best of all apples. But *facts* are what the people want.

A second meeting was held on Tuesday evening, President Dyckman presiding. Secretary Thompson examined and commented briefly on several varieties of apples that had been placed on the table, praising them for their size, beauty, soundness, and general excellence, and comparing them with fruit from another part of the State exhibited at the same time.

Rev. S. Steele, of Northport, was called on and explained the location and general topography of Leelanaw county. The county has Lake Michigan on the west and Grand Traverse Bay on the east, and hence is well protected from frosts and severe winter freezing. The soil is mainly a sandy loam resting on a limestone basis. The timber is principally hard wood—maple, beech, elm, basswood, etc., etc.

Hon. A. B. Dunlap spoke briefly of the county and its adaptation to the production of fruit. He believed the time near at hand when the hills around the bay would be covered with vines and fruit trees. The whole Leelanaw peninsula feels the influence of the lake and bay. Horticulture should be taught in all our schools, and a generation of fruit-growers raised up.

Mr. W. S. Hubbell, of Benzonia, said Benzie county is within the "fruit belt," and had made special effort to be properly represented at the fair. At Benzonia, 10 miles south of Traverse City, and 25 miles west, are orchards now loaded with fruit. Nine years ago a little fair was held at that place, when only a single plate of apples could be shown. When that single plate of apples is compared with the Benzie county collection now on exhibition they may well be proud of the progress that has been made.

Rev. C. E. Bailey spoke briefly of the topography of the county. Thought the high lands between Crystal Lake and Platt Bay among the finest in the entire region for fruit growing. The fruit at the fair grounds shows that there is something in Benzie besides woods. Peaches have been grown at Benzonia *every year for the past ten years*.

Messrs. V. F. Thurston, of Platte, and Wm. Steele, of Homestead, spoke briefly. Mr. Steele believed the altitude of the best fruit lands within the "belt" to be not less than 400 feet above the level of Lake Michigan.

Dea. Jos. Dame, of Northport, spoke of his experience and observations, and mentioned having written a letter to the New York *Tribune* March 11th, 1854, which led to considerable inquiry in regard to this region.

After Mr. Dame had taken his seat Mr. Parmelee requested that he would rise and turn to the audience and tell them his age, so that they could see what kind of old men we raise here. The Deacon complied, saying he was only a little over 77, was always well while here, but sure to get sick if he went abroad.

Mr. Parmelee was not a *local* fruit man. When he went to Elk Rapids and looked out on the beautiful farms and orchards he felt that they were his own. And so, too, when he went to Torch Lake or Northport, or elsewhere, he felt that he had a personal interest in all that was good and beautiful. There are no best localities. The whole Traverse region is the best place in the whole Northwest for fruit growing. We can raise more here that will do a man's stomach good than in any other country.

Many men have no faith in this country, but facts show that the yield of wheat is equal to that of any county in the State. We raise peas "without having the meat put into them." With proper effort we could have taken the first premium on fruit at the State fair. The whole northern portion of the Lower Peninsula will prove to be an apple country. There isn't a more beautiful country on which the sun looks down than that on the east side of Traverse Bay. Northern apples, especially those of Niagara county, N. Y., are everywhere regarded as the best grown. Ours are far ahead of those of Niagara.

A. T. Linderman intends to make apple growing a business. Will plant an orchard three-fourths Red Canada, one-eighth Rhode Island Greening, one-eighth Cayuga Redstreak.

Rev. Geo. Thompson read in the *Herald*, two years ago, that if the limb of a tree was girdled when it was in full bloom it would be certain to bear a full crop of apples. Had tried it with entire success. For two years in succession the girdled limbs had borne full crops. This season the balance of the trees produced no fruit. Could not say what the final effect upon the tree would be. The limbs were girdled by cutting out a ring of the bark only.

RESOLUTIONS.

The committee appointed at the meeting of the Michigan State Pomological Society, on Thursday evening, held at Leach's Hall, reported the following resolutions by their Secretary, which were unanimously adopted:

Resolved, That the enterprise, activity, good sense, and progressive principle exhibited by the officers and members of the Grand Traverse Union Agricultural Society are worthy of praise, and a valuable example to the older agricultural societies of the State. The officers and members of the State Pomological Society are grateful for the invitation to visit the Traverse country, are thankful for attentions, and glad that they came. We shall welcome the men and women of Traverse to our meetings and fairs, and shall ever cheer them on in the noble work of State progress and improvement.

Resolved, That the Fifth Annual Fair of the Grand Traverse Union Agricultural Society is a grand success of which the pioneers of Northern Michigan may well be proud. In fruits it is superior, and has not been excelled by any in the State, this year, for perfection, texture, color, and health of its standard varieties. In vegetables it is fully equal to the exhibitions of the oldest counties, especially in the samples of wheat, oats, and potatoes. We recommend careful attention to the introduction of proper breeds of stock of all kinds.

Resolved, That the thanks of the State Pomological Society, and all visitors from abroad, are hereby gratefully tendered to the citizens of Traverse City for their polite courtesy and unbounded hospitality. Traverse City has been on exhibition, and is awarded the first premium for beautiful homes and kind hearts. The attractions of the city with its river; with Boardman Lake by the fair grounds; with the bluffs destined for the vine, the peach, the pear, and the apple; with the grand Bay, broad and deep enough to float the fleets of all the lakes, are appropriately the surroundings of an intelligent, patriotic, temperate, and hospitable people. Their future is a brilliant one, as their past history has been alike honorable and praiseworthy. We rejoice with them that they are "*out of the woods*."

Resolved, That to Superintendent Wallen, of the G. R. & I. R. R. Co., our thanks are tendered for his offer of an extra car to Grand Rapids; also, for his reduction of fare from Grand Rapids to Grand Traverse. His efforts for our pleasure and comfort we heartily appreciate.

Resolved, That the true policy for all corporations is indicated by the public spirited

owners and managers of the steamers that ply Traverse Bay,—by Hannah, Lay & Co., of the *City of Traverse*; by Dexter & Noble, of the *Queen of the Lakes*; and by the captain and proprietor of the *Élla Burrows*,—men who recognize the fact that there are here live people co-operating with them in building up a prosperous commonwealth, and who seem willing to lend a helping hand.

Resolved. That it is very evident that a leading and controlling interest of the counties touching Traverse Bay is bound to be the fruit interest, and we most kindly and respectfully commend this interest to the authorities of the State, to State Boards of Agriculture, and to managers of corporations. This interest needs markets, harbors, roads, education, and immigration. It hates reservations, but welcomes a helping and sympathetic hand.

OFFICERS ELECTED.

The following named persons were elected officers of the Grand Traverse Society for the year 1874: President, H. W. Curtis; Secretary, L. H. Gage; Treasurer, Thomas T. Bates; Executive Committee, Antrim, R. Knight, A. Campbell; Benzie, L. W. Case, L. P. Judson; Charlevoix, J. S. Dixon, A. Butters; Grand Traverse, J. K. Gunton, W. W. Bartlett; Kalkaska, A. T. Kellogg, U. V. Hill; Leelanaw, James Lee, O. H. White; Missaukee, W. Reeder, J. J. Pollard.

VISITORS.

The people were very glad to welcome to Traverse City so many from abroad. Among them were the President and Secretary of the State Pomological Society, T. T. Lyon of Plymouth, Senators Crosby of Kent, and Prutzman and wife of Barry, H. Holt, Cascade, S. O. Knapp Jackson, W. H. Gregory Van Buren, Prof. Beal, of Lansing; A. T. Linderman, C. J. Dietrich, S. S. Bailey, Dr. Shepard, W. N. Cook, N. Stanton, G. W. Dickinson, all of Grand Rapids; G. W. Glidden, of Paw Paw; R. Marshall, of Painesville, Ohio; W. H. H. Lyon, of Flint, and others.

HARMONY.

An excellent spirit prevailed throughout the entire exhibition. And when the premiums were announced there was a general and cheerful acquiescence in the decisions of the committees. The fruit growers of Benzie county who had contended with Grand Traverse for the county prize, and those from Leelanaw, who tread so closely on the heels of Peninsula, accepted the decisions of the committee with a grace that made many observers almost wish that they had come out ahead. And if Grand Traverse does not keep moving on, such will be the result at no distant day.

THE DECEMBER MEETING.

BATTLE CREEK, December 2, 1873.

The regular annual Meeting of the Michigan State Pomological Society convened at Peninsular Hall at 2:30 o'clock Tuesday afternoon, A. S. Dyckman, President of the Society, in the chair, J. P. Thompson, Secretary.

The Secretary submitted the following letter from Mr. P. Barry, of the Mount Hope Nurseries, of Rochester, N. Y.:

MOUNT HOPE NURSERIES, ROCHESTER, N. Y., }
November, 22, 1873. }

DEAR SIR:—Your favor of the 11th inst. came duly to hand. A National Centennial Horticultural Society was organized in Philadelphia, in September, for the purpose of aiding the Centennial Commission by taking charge of the Horticultural and Pomological department of the great exhibition. Committees are now engaged in preparing plans for buildings, such as plant houses, conservatories, etc.; also for the grounds appropriated for this purpose. The intention is to have a Horticultural and Pomological Exhibition such as has never been seen, all the States participating. We want in every State an efficient committee, who will awake an interest on this subject, and take such steps as will secure an honorable representation of their State in its garden and orchard products on this occasion. The best horticultural establishments in Europe will be represented. We will look for a grand display from your favored State. I desire to name some one in your State who will organize the State Committee. I shall take pleasure in keeping you advised of progress.

Truly yours,

P. BARRY.

The letter was referred to a committee of three, consisting of Messrs. Holmes, Sterling, and Briggs. The committee afterward reported that they had agreed to report the name of Governor Bagley, a proper person to institute the State Committee. Governor Bagley accepted the commission.

THE RUBICON APPLE.

An apple called the "Rubicon" or "Paw Paw," raised by A. C. Glidden, of Paw Paw, was submitted to the Society by the Secretary, which has heretofore been classified among the natural varieties, but in consideration of its excellence was deemed worthy of admission to the family of the standard grafted varieties. In regard to this apple the following from the Grand Haven Herald was read:

A "Subscriber in Michigan" writes: "If you, or any of your readers know anything about the Rubicon Apple, please give me full information in the Rural New-Yorker, including the color, and whether it is sweet or sour. The information I have of it says it is a new kind,—the most beautiful, long-keeping apple in cultivation; about the size of the Baldwin, but in every way superior to it; perfectly hardy, and keeps until July and August; an early bearer and very productive; but I do not learn the color. Would it be advisable to cultivate a kind for market that is not popular, even though it be a superior kind?"

In response, we state that we never saw the apple referred to; but it is described in "Downing's Fruit and Fruit Trees of America" under the name of Pawpaw, with the synonyms of "Western Baldwin," "Rubicon," and "Ball Apple." We give Downing's description as follows: "Origin, Paw Paw, Mich. Tree hardy, a good and regular bearer. Young shoots dull grayish reddish brown. A new apple, esteemed in its place of origin for its productiveness and beauty of appearance. Fruit medium, roundish oblong, slightly oblique; yellow, shaded, and mostly overspread with bright rich red, faintly splashed and mottled, moderately sprinkled with aureole dots. Stalk medium. Cavity deep and narrow. Calyx partially open. Segments a little recurved. Flesh yellowish, juicy, firm, rich, brisk sub-acid. Very good. Season December to June."

Evidently, from this description, it is a desirable winter market apple in every respect. No; we do not advise the culture, extensively, for market, of fruits that are not popular, or that have not the elements of popularity, unless one has hope of making those who purchase *know* the superiority of the unpopular fruit, which we have found to be up-hill work. A grower cannot control taste; and some people value the gratification of the senses through the eye as highly as through the palate.

The above article appeared in a recent number of the Rural New-Yorker. Learning from a friend that Mr. James Harris, of Grand Haven township, had cultivated this apple for several years, making a speciality of it in fact, we wrote him for the information asked for.

Mr. H. did not reply to the letter at the time, but came in person some time after, which accounts for the delay. Mr. Harris gives the following account of the origin of the apple:

Thirty-two years ago the mother-in-law of Mr. H., Mrs. Ball, who was on a visit to Niles, ate an apple, the seeds of which she saved and carried home to Paw Paw, where they were planted, one of the trees from that planting being the Rubicon, or "Ball" apple, as claimed by Mr. Harris, who cultivated and brought the trees into bearing.

Soon after the tree began to bear, Mr. H., in conversation with Mr. Lyman S. Hall, a nurseryman of Paw Paw, on the relative qualities of different fruits, laid a wager that he would produce the best fruit, and won it on the Rubicon apple, and in this way this fruit was first brought into notice. Specimens were sent to Mr. Barry, a nurseryman of Rochester, N. Y., who thoroughly tested it, and gave it the name of Rubicon. Ten years ago Mr. Harris moved to Ottawa county, Michigan, bringing with him some of the trees to set in a new orchard. He now has about one hundred and fifty trees in bearing. He has furnished the Spring Lake nursery with 20,000 grafts from his present orchard.

This apple was exhibited at the Michigan State Fair in 1871, and again at Grand Rapids in 1872, and took premiums at both places. He took fifteen awards at the Spring Lake Horticultural Fair in 1871, and in 1872 no awards were made, which Mr. Harris claims was partial and unfair. He is enthusiastic on the subject of the "Rubicon," and will cheerfully answer any inquiries that may be addressed to him at Grand Haven. He says the apple is rightly described in the article of the Rural, except as to the season, which, for this locality, is later, being from January to July. The skin is a handsome red, and flesh yellow and pleasant sour.

After considerable discussion the apple was referred to the standing com-

mittee on nomenclature. It was the sense of the meeting that the name "Rubicon" should be retained in place of "Paw Paw."

A communication from A. C. Glidden, of Paw Paw, relative to Snow's Orange Peach, was read as follows:

SNOW'S ORANGE PEACH.

This variety was first brought into notice by Mr. L. P. Hall, of Paw Paw. He being quite an enthusiast in the matter of seedlings, budded from this tree in the fall of 1857. The winter following the tree was killed by the severity of the cold. The tree grew in the front yard of a Mr. Snow, where it had undoubtedly sprung from the seed, as the position was such that it would seem no sane person would plant a tree in such a place; and indeed, none of the improved sorts were known or cultivated at this time, and no peach trees had been brought to Paw Paw for sale. All depended on seedlings. Mr. Hall budded from several seedling trees in the vicinity of Paw Paw, but none save the Snow's Orange has attained more than a local reputation. Snow's Orange has been thought by some to be identical with the Barnard; but as grown in the nursery row the leaf is two shades lighter green than the Barnard, and larger, and the tree a more rampant grower. The fruit, with similar cultivation, is larger and has a deeper blush, a finer texture, and less of the mottled appearance of the Barnard. That this is a Michigan seedling, no one who will take the trouble to investigate, will doubt.

Mr. Lyon, of Plymouth, did not think the peach was worthy of a distinctive name, regarding it as he did, as simply a variety of the Barnard.

Inasmuch as he himself had been the original propagator of the Barnard peach in Michigan, Mr. Parmelee, of Old Mission, was not sure but that the Snow's Orange might be a variety of peach at one time known as the Barnard.

Mr. Stearns, of Kalamazoo, while satisfied that no conclusion could be reached on the subject at this time, thought that much progress could be made on determining the question, and therefore favored its investigation at the present meeting.

Mr. Glidden said the Snow's Orange peach cannot be identified with the Barnard. Its color, texture, and appearance was different from the Barnard.

The peach was referred to the committee on nomenclature.

It was the sense of the meeting that it was a very promising Michigan seedling.

INVITATION.

A letter was received from W. W. Woolnough, President of the Board of Education of Battle Creek, inviting the Society to visit the public schools of the city. The invitation was accepted, and Thursday forenoon fixed upon as the time.

AMENDMENTS TO THE CONSTITUTION.

Mr. C. W. Garfield submitted the following: At the January meeting in Lansing Mr. C. W. Garfield gave notice that at a future meeting he would offer amendments to the constitution and to the by-laws that would provide for the election of two members of the executive board annually, instead of having the term of the six members expire at the same date.

It is quite necessary that these amendments be acted upon before our election of officers at this meeting, so that if adopted we need not wait a whole year to accord with their provisions.

The amendment to the constitution will make Article II. read as follows, to-wit: The adopted amendment of Dec. 3, 1873, is also incorporated.

"The officers of the Society shall consist of a President, a Vice President in each county, so far as may be deemed necessary or practical; a Secretary, and as many local Secretaries as may be deemed necessary; a Treasurer, and an Executive Committee of six members, exclusive of the President, Secretary, and Treasurer, who shall be members *ex officio*. Of this committee four shall constitute a quorum for the transaction of business, at any meeting of said committee: *Provided*, Each member shall have been notified in the usual manner of such meeting. All the above officers to be elected annually by ballot, except the Executive Committee, whose terms of office shall be so arranged that two vacancies shall occur annually.

"The arrangement for the election of the Executive Committee is made through an additional by-law, No. 6, to section V., which shall read as follows, to wit:

"The election of the Executive Board shall be arranged as follows: Two members shall be elected for one year, two members for two years, and two members for three years, at the next annual election; after which two members shall be elected annually, the term of office being three years."

On motion the amendments proposed by Mr. Garfield were considered and adopted.

LETTER FROM JUDGE RAMSDELL.

TRAVERSE CITY, MICH., November 27, 1873.

I regret exceedingly that professional engagements prevent my attending the meeting of our Society at Battle Creek in December, for I would like to submit some matters for the consideration of that meeting which I could explain much better orally than I can by letter. But as I cannot be there, I will give you a general outline of the subjects which I wish to propose, and if you deem them worthy of consideration you may present them at that meeting.

First. If a fair and equitable arrangement can be made with the State Agricultural Society I would hold the annual fair, for the *awarding of premiums*, with them, and let it be conducted in the usual manner; for I think it desirable that we control all extensive fruit exhibitions in the State. That Society must certainly have such a department in their exhibition, if not under our control, then under theirs.

Second. During the year I would have one or two other exhibitions, at which an admission fee should be charged, but no premiums awarded. The first of these I would hold at such time as would be most favorable for a full display of peaches and plums. For the management of this exhibition, I would suggest the following plan: Appoint a committee of management, and let that committee employ competent and active persons, members of the Society living in different parts of the State, to make collections of fruit and flowers for exhibition at this fair; giving them full instructions as to kinds and quantity, how to pack, direct, and forward to the Society, to pay the expense of procuring, collecting, and packing, and all charges for freight, the fruit to be the property of the Society.

This fair should be held in the city of Detroit, for the following reasons: 1st. I believe the business men of that city would provide ample room for the accommodation of the Society, free of expense to us; 2d, it would place the exhibition within easy reach of more people than any other place; and 3rd, because it is remote from the localities where the finest specimens of these fruits are grown, and would attract great interest on that account.

This plan would render it unnecessary for the persons furnishing or collecting the fruit to be present, and the managers could continue the exhibition as long as it would be desirable to do so, and at the end the fruit could be sold for the benefit of the Society.

Third. At the best season for a display of apples and pears another fair might be held on the same plan, if the first should prove successful. At the first of these a time might be fixed that would admit of Hale's Early, in their prime, from the north, and Crawford's Late, in their prime, from the south end of the peach belt, with intermediate kinds from intermediate points; showing every variety in its perfection, and the same with plums. Such an exhibition could not fail to attract great attention, especially in a locality where fine specimens of these fruits are seldom seen. The details of these exhibitions could be easily and cheaply managed, as it would require the personal attention of none, except the managing committee.

Another matter which I wish to suggest is, the propriety of appointing a committee to wait upon the Governor, and request him to advise action on the measure that was lost last winter, in his message to the special session of the Legislature, soon to be called, and present our reasons for asking the aid in the form of a memorial. If I could be there, "I would rise to explain," the why and wherefore of this suggestion, but I will not worry your patience with a written essay on political economy. Hoping your meeting may be a success, I remain,

Yours truly,

J. G. RAMSDELL

LETTER OF CONGRATULATION.

SOCIETY ROOMS, GRAND RAPIDS, NOV. 29, 1873.

Gentlemen of the State Pomological Society:

We address you in behalf of the Kent Scientific Institute, and for the purpose of establishing that freedom of intercourse which should exist between kindred societies. Our Association was formed, to be sure, with an object quite different from yours; still we feel that there should be co-operative movement, in that our work so often holds so intimate a relation to yours. We find that many questions under discussion at your meetings have occupied the attention of our society, and other topics that have been suggested in the form of questions at your monthly sessions have been the subject of long and continued study by workers in our Institute. Matters connected with soils, meteorology, timber protection, shifting sands, etc., are examples. In future, should queries of such common interest arise before your Pomological Society, and you should desire to receive the benefit of any investigation we have made, or might make, we would consider it not only a privilege but an honor to render you any information or assistance in our power. We are pleased with the good work you are accomplishing in our State, and feel to congratulate you, in the strongest terms, upon the eminent success you have attained in making our fruit-growers comprehend the breadth of their vocation, the necessity of mind culture as well as soil culture, and beyond this the real monied value of scientific investigation when developed in connection with the raising of fruit.

Hoping that the most cordial feeling will ever exist between our Societies, and that it will be productive of mutual benefit, we are, gentlemen, friendly yours.

A. O. CURRIER, President,
CHAS. W. GARFIELD, Secretary,
Kent Scientific Institute.

The above communication was referred to a committee consisting of Messrs.

Cook, Steele, and Hamlin. This committee subsequently reported in favor of cordially accepting the kind offers of the Kent Scientific Institute. Report accepted and adopted.

HARDY APPLE TREES.

Mr. J. D. Husted, of Lowell, in his remarks asserted that the following named trees had shown themselves the hardiest, being uninjured by winter, and producing from one-fifth to one-half a crop, the first named four half a crop, viz.: Wagener, Primate, Pumpkin Sweet, Early Joe, Baldwin, Red Astrachan, Golden Sweet, Maiden's Blush, Talman's Sweet (two-thirds) Northern Spy, Fall Orange, and Golden Russet. The Newton Pippin had shown itself unprofitable. The other sorts enumerated by Mr. Husted as being hardy, but not quite as much as the preceding, were the Swaar, Yellow Bellflower, Twenty-Ounce Pippin, Calvert Seek-no-further, Red Canada, Porter, Saxton, William's Favorite, and Tallow Pippin. Mr. Husted gave as his judgment as to the hardier sort of plums the following: Lombard, Canada Egg, Seedling, Red Egg, and Prince's Red Gage.

HARDY PEARS.

In pears Mr. Husted's experience convinced him that the hardiest trees were the Clapp's Favorite, Bartlett, Flemish Beauty, Sheldon, White Doyenne, Onondaga, Buerre Anjou, and Seckel, and in a less degree the Lawrence, Vicar of Winkfield, Buerre Clairgan, Louise Bonne de Jersey and Glout Morceau.

Mr. Husted enumerated the following apple trees as among the tender sorts liable to be injured by heavy frosts, chiefly in the tops, and to such an extent as to "color the wood," viz.: Sweet Bough, Early Harvest, Fall Pippin, Roxbury Russet, Esopus Spitzenburg, Gravenstein, Hawley, and Cayuga Streak.

Mr. George Parmelee, of the Grand Traverse region, gave an interesting exhibit as to the effect of the severity of last winter upon the fruit trees in his region. The "Ben Davis" variety of apples suffered most; peaches and cherries suffered but slightly. The trees dying first manifested signs of injury about the roots and trunks; did not consider the killing of the trees attributable to the action of the frost upon the body and branches of the trees alone, but mostly to the collar of ice forming about the roots or base of the tree in the hollow or depression in the ground, which continued all winter. The condition of fruit trees in his section was good, and fruit prospects for the coming year were most promising. He noticed several almond trees on his place showed signs of being dead in the spring. The wood next the bark looked red, hard, and lifeless, a condition peculiar to trees recently killed; nevertheless they blossomed and fruited profusely, and are at present in a healthy condition.

Rev. S. Steele, of Northport, corroborated the statement made by Mr. Parmelee as to the effect of the weather last winter on fruit trees and fruit in his section. The trees gave no signs of dying until they had budded and blossomed in the spring, and many of them fruited before dying. He is satisfied that the trees were killed by the ice accumulation about their roots.

Mr. W. H. Adams, of Benzonia, five miles from Lake Michigan, said that the fruit prospects for next year in his section were good,—in fact never better,—particularly peaches.

Prof. Cook, of Ingham county, said the apple crop in his section this year was light. In his opinion those suffering most from the severity of last winter were the "Sweet Boughs." Prospects for the coming year are good.

Mr. J. D. Husted, of Lowell, did not consider that a mild, open winter would

insure the safety of fruit. Frequent freezings and thawings often produced fatal results in fruit and other crops. The "Maiden's Blush" and other delicate varieties of apples withstood the severity of last winter in this section better than many of the more hardy varieties. Many of the trees injured are still alive and give good evidence of full recovery, and thinks that the extreme dryness of last summer caused as much injury to the late fruit crop as the severity of the weather last winter.

Mr. Stearns, of Kalamazoo, said (alluding to Mr. Parmelee's remarks regarding the apparent injury to his almond trees) that if such signs were evidence of a good crop, he felt sure that they might calculate on a good crop next year in his section, as many trees coming under his observation were similarly affected, and thought that the extreme drowth of last summer was quite as detrimental to the late fruit crop as the severity of last winter. He thinks the severity of last winter will have a tendency to thin out many of the favorite varieties of apples, owing to the damage sustained by the trees, though he thought fruit growers ought not to become discouraged at one failure, but should give those varieties killed a good trial.

Adjourned to 7 P. M.

EVENING SESSION.

ADDRESS OF HON. A. S. DYCKMAN, PRESIDENT, AT THE ANNUAL MEETING AT
BATTLE CREEK, MICHIGAN, DECEMBER 2, 1873.

The snow that covers with its mantle of purity the flowers asleep, the groves, of their summer glory and sweet melody of birds bereft; the leafless orchard, in cold conservatory, bearing the latent promise of another harvest, the sea in vain lifting its warm waves against the frozen land, the winds that wander with aimless energy,—wild in their desolation,—all these define the close of the pomologic year. And, as we can no longer labor in the field, it seems a proper occasion to meet in consultation and review the lessons of our annual term at school,—for the fruit-grower must be ever a student.

This has been a year fruitful at least in valuable experiences. The test winter of 1873, while blasting the hopes of some in the destruction of trees or crops, will go far to determine many questions of vital practical interest to the fruit-grower.

We shall have new light upon the question of locality, situation, and exposure most favorable to different varieties of fruit.

We shall have more definite knowledge of the hardiness of varieties.

We shall see the importance of winter protection, and this may lead to successful experiments upon this most difficult question.

We may learn whether freezing has any influence in the development of certain diseases of plants.

We can learn something of the conditions of soil and tree that will best secure immunity from frosts.

These lessons reduced to practice may, in the future, yield a rich compensation for losses of last winter, for, having known the worst, we can wisely provide against it.

But even this unprecedented year the crop failure has not been general. In

many localities, where the peach crop has mainly failed, small fruits, grapes, apples, and pears have been borne in abundance, and the fruit has sold at high prices, while also the reputation of the peach belt has been well sustained.

Instead of discouragement we find everywhere a new determination to meet all difficulties with the unfailing resources of American genius and industry.

And so our Michigan pomology comes out of this wintry cloud into the sunlight of assured success.

Our Society has done much important work during the year—having held successful meetings at Lansing in January, Battle Creek in February, Grand Rapids in March, Ada in May, Kalamazoo in June, South Haven in September, and Traverse City in October, besides the State Fair at Grand Rapids, which in view of previous exhibitions, it is sufficient to say, was more than creditable to the State.

The various committees have made valuable reports:

The committee on "diseases of the peach tree," composed of Professor J. C. Holmes, Judge H. G. Wells, Hon. S. O. Knapp, and Dr. R. C. Kedzie, as also the orchard committee, Prof. W. J. Beal of the Agricultural College, C. W. Garfield, W. H. Gregory, N. Chilson, and C. N. Merriman, have visited various parts of the State, and their observations furnish interesting additions to our fund of information.

We are also much indebted to Professors A. J. Cook and R. C. Kedzie, of the Michigan Agricultural College, in the departments of Entomology, Ornithology, Chemistry and Meteorology, and to Prof. W. K. Kedzie, now of the Kansas Agricultural College, for services as meteorologist.

It would be pleasant to acknowledge all contributions of addresses, essays, music, and fruits were it possible to compress so much into the space to which we are entitled.

We must, however, devote one sentence to the press, who have bestowed so many upon us. The Detroit Free Press, Tribune, and Post, and the Chicago Journal, Inter-Ocean, and Tribune are deserving of special mention for having reported our meetings. Mr. Johnstone, of the Michigan Farmer, has given the columns of his paper free to the publication of all our articles, and to C. W. Garfield the Society is under new obligations for his reports.

These gratuitous services have been bestowed not more freely than the generous hospitality with which we have been received without exception. Their reward can only be fully realized in long years of grateful memory.

Our finances, with all the liberality of friends, and in spite of every effort, are in a condition quite unsatisfactory. After paying past indebtedness and expenses of the State Fair, we have not been able to pay all the premiums of the present year.

We congratulate the Society and the country upon the prospect that the storm-cloud of war will be diverted from our shores. And who would not hope that old Spain, who thus promptly repairs the insult to our flag, fully enfranchised, having guaranteed to suffering Cuba the benefit of her republican laws, instead of guns and death, may bring to our centennial exposition those fairest tokens of international union, the best results of her productive industry? And would it not be the highest achievement to maintain our supremacy in these?

Ours is a perpetual work in which new necessities will constantly arise, and old ones, like the routine of the household, be ever repeated; while the possibilities are as wide and various as the objects of use and beauty in nature.

Each year brings its disclosures, a prophetic heraldry of the yet unknown. So when we take our easy chair and fold our hands complacently to rest we are drifting into the background and obscurity of time. The "vigilant, the active, the brave," and therefore successful man will be found ever in the advance.

It is our earnest desire that there may be found enough such men (which includes women) to sustain our State Pomological Society through many years of still increasing usefulness.

We shall ever bear with us very many pleasant remembrances, and a sincere appreciation of the uniform courtesy and kindness that has prevailed in all our associations.

THE BEST AND HARDIEST GRAPES.

The discussion on this subject was opened by N. Chilson, of Battle Creek, who gave his experience of twenty years with many varieties. His acquaintance with all the known sorts convinced him that the best grapes for Michigan were, first and foremost as a profitable grape, the Delaware, and next in order the Concord, Diana, Hartford Prolific, Rogers' Hybrid, and a new grape originated in Attica, New York, and there styled the Eureka. He covered his vines with earth in winter, being satisfied that we had no grapes hardy enough to stand the climate, and pruned on the "renewal" plan.

Mr. Thompson stated that Mr. Bradfield, of Ada, who was not present, recommended the covering of the vines with earth in winter, and had laid down 4,000 in his vineyard at an expense of twenty dollars.

T. T. Lyon believed the soil had much to do with the hardiness of the grape.

J. M. Sterling, of Monroe, declared that not much could be ascertained from his section in regard to the best grape, as but few varieties were grown. He gave a detailed account of the manner in which the vines were grown and cultivated about Monroe. They began pruning as soon as frosts came and continued the process into the month of April, without any difference in results.

J. M. Stearns regarded the award of \$100 to the Concord, as being the best grape, was in all respects the wisest ever made. He advocated pruning on the renewal system.

Mr. Merriman believed that neither the renewal nor any other arbitrary system of pruning would do everywhere, but that the culture should conform to the locality.

STRAWBERRIES.

At the suggestion of a gentleman from Ohio the president permitted the discourse to change to the strawberry, and Chas. Merritt, of Battle Creek, took the floor and explained his method of cultivation, which was the usual method, including mulching and the close trimming of runners.

William N. Rowe, of Walker, recommended the diligent use of the cultivator between the rows.

J. N. Stearns, of Kalamazoo, adopted close planting and mulching in the winter and close cultivating in the spring, replacing the mulch, preferring for that purpose, marsh hay.

Prof. C. L. Whitney wished that the Ohio visitor could see the strawberry fields in Ottawa county, illustrating their extent by an anecdote of Thomas Wilde, of Berlin, the most extensive grower of the State. A certain man from Grand Rapids thought to buy Mr. Wilde's entire crop one season, and advanced

\$50 to secure the bargain ; but was horrified to have seventy-five bushels sent him as the picking of one morning, and immediately begged to be released from his contract. Mr. Wilde adopted first, last, and all the time the Wilson, cultivated so closely as not to give room for weeds to grow, did not mulch, but plowed the vines under, and used in the spring the sweepings of the hennerly. Professor Whitney never saw finer or better strawberries, and his remark that Wilde was the first and the last man in the market, evoked some applause.

NO VOTE ON THE GRAPE.

On motion of Professor Whitney, each member of the Society was requested to place upon a ballot the names of the six varieties of grapes which he believed the best.

Mr. Sterling deprecated the idea of the Society giving expression to its opinion without further discussion. A list had been authoritatively published in regard to a professional, an amateur, a market, a table, and a wine grape.

Mr. Johnstone also advised against a ballot, on the ground that perfection in the grape had not yet been reached.

Messrs. Lyon, Stearns, Briggs, Johnstone, Cook, and Whitney further discussed the question, and on motion of Mr. Sterling, it was laid on the table. Adjourned.

WEDNESDAY MORNING.

SECRETARY THOMPSON'S REPORT.

Mr. Thompson showed that progress in fruit culture had been fair during the year past, and in particular adverted to the fact that the apple crop of the State had done much to relieve the stringency of the financial panic, bringing into Michigan large sums of money at the very time it was most needed. In fact, from the appearance of the early strawberry to the shipment of the last apple a succession of fruits had been produced in Michigan, the net proceeds of which were scarcely second to that of any other crop.

The Secretary acknowledged the courtesy of Mr. Morrison, of the Chicago and Michigan Lake Shore Railroad, Mr. Watson, of the Detroit and Milwaukee, Mr. Sargent, of the Michigan Central, and Mr. Gorham, of the Grand Rapids and Indiana Railroads. They had enabled the Orchard Committee of the Society to visit the various entries, and their several contributions in this way had done very much to sustain the Society. Allusion was made to the fact that the Lake Shore and Michigan Southern and the Flint and Pere Marquette Railways had refused all favors to the Society. Mr. Thompson considered this very illiberal on the part of the railroads, inasmuch as the labors of the Society tended directly to advance their interests very materially. The people of Michigan, he thought, loved fair play, and recognized the fact that the railroads had done an immense work in developing the State, but at the same time the policy of those roads which refused to extend aid to the Society to enable it to stimulate orchard culture was characterized as short sighted and illiberal.

The general success of the Society was referred to. The exhibitions had been worthy of the great State, and the published lists of fruits recommended by the Society and its reports had attracted very much attention at home and abroad.

The Secretary hoped that the time was at hand when the public spirited citizens of Detroit would open a hall and provide the requisites for a six days' exhibition of the products of the orchards, vineyards, nurseries, and conservatories—one that should be creditable alike to the indomitable fruit and flower growers of the State, to the State itself, and to its commercial metropolis and chief city. This recommendation was received with applause.

In regard to flowers, the Secretary showed that it was a business not at all affected by the panic, but that the sales had been as large and the business as remunerative as if no financial stringency had interrupted other pursuits.

The report was referred to the Executive Committee.

An invitation was extended by Mr. Ira Abbey, Superintendent of the Health Institute, to the members of the Society, to visit that institution the 4th inst., and to dine at 1:30 P. M.

Judge B. F. Graves spoke at some length in highly commendatory terms of the institution and the denomination of Seventh-day Adventists, by whom the Health Institute is conducted, and earnestly recommended the Society to accept the invitation, which was unanimously done.

An invitation from the citizens of Marshall to the Society to hold their June meeting in that city was referred to the executive committee.

The report of the orchard committee was then read by Prof. Beal, when the convention adjourned until 1 P. M.

AFTERNOON SESSION.

Prof. Whitney, of Muskegon, called attention to the imperfect return of the fruit products of the State in the census reports, and the Executive Committee were instructed to take steps to induce the government to include more extended fruit statistics in its next census report.

The special order was announced:

THE ANNUAL ELECTION OF OFFICERS.

A communication from the President of the Society, Mr. A. S. Dyckman, was read by the Secretary, announcing his withdrawal from the candidacy for re-election to the Presidency of the Society in consequence of his inability to attend the annual State Fair. His peach harvest came at the same time the State Fair was usually held.

A communication from the Peninsular Farmers' Club, nominating George Parmelee for President, was read, as was likewise a letter from H. G. Wells, nominating Prof. W. J. Beal for President. Both gentlemen declined.

The Society then proceeded to the election of officers, which resulted as follows:

President—A. S. Dyckman, South Haven.

Secretary—J. P. Thompson, Grand Rapids.

Treasurer—Henry Seymour, Grand Rapids.

Executive Committee—J. C. Holmes, Detroit, W. W. Tracy, Old Mission, for one year; Geo. W. Bruckner, Monroe, S. O. Knapp, Jackson, for two years; N. Chilson, Battle Creek, A. J. Cook, Lansing, for three years.

Vice Presidents—E. Buel, Kalamazoo Co.; W. H. Gregory, Van Buren Co.; Edward Bradfield, Kent Co.; E. N. Smith, Ionia Co.; J. A. Robinson, Calhoun Co.; J. G. Ramsdell, Grand Traverse Co.; John Gilbert, Clinton Co.; James

Follet, Antrim, Co.; T. T. Lyon, Wayne Co.; J. P. Barnes, Shiawassee Co.; W. J. Beal, Ingham Co.; E. J. Shirts, Oceana Co.; I. E. Ilgenfritz, Monroe Co.; Benjamin Newkirk, Jackson Co.; W. S. Hubbell, Benzie Co.; Hunter Savidge, Ottawa Co.; Geo. W. Towles, Berrien Co.; Porter Beal, Lenawee Co.; Judge Pratt, Hillsdale Co.; W. B. Sprague, Branch Co.; Joseph Gridley, Eaton Co.; B. G. Buel, Cass Co.; J. Webster Childs, Washtenaw Co.; G. W. Phillips, Macomb Co.; C. F. Whitney, Muskegon Co.; Ira H. Butterfield, Lapeer Co.; J. M. Davis, Genesee Co.; James Satterlee, Montcalm Co.; D. W. Wiley, Allegan Co.; A. C. Prutzman, St. Joseph Co.; J. C. Davis, Oakland Co.

T. T. Lyon, of Plymouth, was appointed a delegate to the Ohio Pomological Society. Adjourned.

EVENING SESSION.

The evening session opened with a larger attendance than at any preceding session, notwithstanding the serious impediments offered by a combination of rain, mud and darkness. A large portion of those present were from the country, and many from considerable distance. Many of the town's people were also present.

The exercises of the evening received a joyous and spirited impulse, by such music as only Battle Creek's favorite quartette, Mrs. Eva McAllister, Mr. W. F. Neale, Mr. Brainard T. Skinner and Miss Ella Skinner, assisted by Prof. Cobb at the organ, can produce, and they did "O Italia" with such artistic grace and harmonious effectiveness, that everybody seemed to wish that Pomology might be made to extend its jurisdiction far enough to include the songs and the singers as a part of the institution forever.

The first business was the announcement of the committee to meet the Executive Board of the State Agricultural Society on the 15th, and consult with them in relation to the next fair, and also to negotiate an appropriation from that Society toward the premium list of fruits and flowers. The following were appointed: Henry Fralick, S. L. Fuller, A. S. Dyckman, J. P. Thompson. Rev. Richmond Fisk, Jr., D. D., of Grand Rapids, repeated before the Society his lecture on Colorado, its parks, climate, people, settlement, agriculture, irrigation, etc., illustrating the same by a map and diagrams on the black-board. It was very interesting in its character, delivered with much grace and fervor, and frequently applauded.

Prof. Cook gave an interesting and detailed account of the "peach borer," its manner of operation, its fatal effect upon trees, and the means of its extermination.

Adjourned to the 4th inst.

THIRD DAY'S PROCEEDINGS.

MORNING SESSION.

The Society assembled pursuant to adjournment. The visit to the public school building having been set down by appointment with the School Board for 10:30 A. M., no society business was taken up during the intervening half

hour. About 30 members of the Society, mostly from abroad, accompanied the Board to the Central School building, and were cordially received by Prof. Montgomery, Superintendent, who conducted them through the building into the several departments, in all of which recitations, and the usual daily routine of study were in progress. On entering many of the rooms the visitors were greeted with songs and other demonstrations of welcome and respect by teachers and pupils, doubtless arranged for the occasion, and which were evidently productive of a most pleasing effect upon the visitors. The management of the school, the beauty, arrangement, and adaptability of the building, which is admitted as being the finest in the State, if not in the entire Northwest, received most hearty approval and commendation from the visitors.

AFTERNOON SESSION.

The afternoon session was opened at 3 P. M. Secretary Thompson stated that several parties had offered gratuities of books to the Society, with a view of creating a library. The books so donated are to be placed in the custody of the Secretary, in his office at Grand Rapids.

A discussion on the codling moth followed, as the apples generally through the State had grown excessively wormy.

The Secretary stated that a large fruit grower had turned hogs into his orchard each year and found they exterminated the moths.

Mr. G. W. Dickinson, of Grand Rapids, stated that a gentleman of his county had pursued the same course with satisfactory results, and that he himself had used this method with good results.

Prof. Cook, of the Agricultural College, thought that the hogs were beneficial, but that placing bands about the trees was quite as necessary. The bands should never be examined before the first of July. The Professor had raised several of the moths for experiment.

Mr. N. Smith, of Ionia, had faith in plowing his orchards for crops.

Mr. Dickinson plowed his orchard in the fall, and turned in his hogs in the spring.

Mr. Gregory had captured many moths by using the cloth bandages. He found a large number of moths under his bandages on the 6th of November. Mr. Gregory stated that in South Haven the swine had not helped the apple crop. The late drouth had proved very detrimental to the fruit crop.

Mr. Geo. Taylor, of Kalamazoo, chairman of committee on flowers, submitted the report of his committee, which was highly commendatory of the plants and flowers on exhibition, consisting of many choice varieties, among which were twenty varieties of Geraniums. The entire lot of plants and flowers on exhibition belonged to the Chilson Brothers, of Battle Creek.

Adjourned at 4 P. M., to 7 P. M.

EVENING SESSION.

The meeting opened with music by the quartette which sang the preceding evening—and the beautiful song entitled "Summer," which they rendered with their usual skill and effect, produced a very summer-like feeling in the hearts of all present.

The committee on resolutions, through its chairman, Mr. C. L. Whitney, submitting the following resolutions which were unanimously adopted:

Resolved, That we, the attendants upon this meeting of the State Pomological Society, feel that the citizens of Battle Creek have placed us under an additional obligation to them for assiduous attention and generous hospitality showed us at this, our second visit to their beautiful city, for which we can only thank them, feeling, however, the inadequateness of a mere vote of thanks to cancel such a debt.

Resolved, That we acknowledge our obligations to Messrs. Chilson, Robertson, Merritt, and others whose efforts have tended largely to make our visit here both pleasant and profitable; also to Mr. A. C. Hamblin and other citizens, for use of hall, etc.

Resolved, That we feel deeply indebted to Mr. Black, Superintendent of the Chicago & Lake Huron Railroad (late Peninsular), for the courtesies shown the Society, giving return tickets to the members attending this meeting. Such considerations and aid in the interests of the producing classes of our own State will be seen to be reciprocated by them.

Resolved, That the Battle Creek Health Institute has placed us under the obligation of more than a grateful remembrance for the bountiful hygienic repast enjoyed by us on our visit to-day.

Resolved, That we congratulate the citizens of Battle Creek upon the success attending their public schools, and thank the members of the School Board, Superintendent and teachers for the attentions shown us on the occasion of our visit.

Resolved, That we feel deeply grateful to President Abbott, of the Agricultural College, and Prof. J. C. Holmes, of Detroit, for valuable donations of horticultural works to the State Pomological Society.

Resolved, That we shall carry with us a grateful remembrance of the sweet music discoursed at our meetings, by Mrs. McAllister and her able supporters, Prof. M. N. Cobb, Miss Ella Skinner, Messrs. B. T. Skinner and W. F. Neale.

Resolved, That the reporters of the *Detroit Tribune*, *Free Press* and *Post*, the *Chicago Tribune* and *Inter-Ocean*, and of the *Battle Creek Daily Journal* and *Michigan Tribune* have our thanks for their valuable aid in placing before their readers current records of our work done here; and especially to Mrs. Eva McAllister, whose musical reputation is so well known in Michigan, do we render tribute for the artistic rendering of the ballads sung by her.

The reports of the committees on apples and small fruits were presented and adopted, as follows:

The committee to whom was referred the collection of apples on exhibition at this annual meeting of our Society, feel proud to report such a magnificent display. It seems to be a very general expression of the people who have carefully examined the collection, that in point of good varieties this is truly a wonderful exhibition. The fact that all the most prominent and valuable varieties of our State are here represented with so very few of the poorer orders, adds materially to the value of the display. Another matter of importance is the wonderful perfection of each variety, considering the extraordinary character of last winter's temperature and the ensuing summer's drouth. The fruit is universally well colored and very solid. That from the Grand Traverse region is eminent in this latter quality.

The committee found over 90 varieties upon the tables, including summer, fall, and winter sorts. The plates of fall apples from the north seemed in as good a state of preservation as our early winter sorts, substantiating the long keeping qualities of the fruit raised in the Traverse region.

After carefully examining the different entries, comparing the number and comparative value of varieties, their condition and coloring, the committee were unanimous in awarding the following premiums:

1st premium—Parmelee & Adams, collection from Grand Traverse and Benzie. 2d premium—J. E. Robinson, Battle Creek.

Although it became our duty to award premiums in these cases, still we feel to commend the interested spirit which led so many individuals to bring to the tables of the Society such fine collections. Several exhibitors had as many as 15 varieties of beautiful apples, and we desire to make honorable mention of the display made by the following members of our Society: N. and C. Chilson brought 16 varieties, including the Maiden Blush, that premium summer apple, in admirable preservation; also the Autumn Strawberry, well kept. Mr. E. Buel, Kalamazoo, presents plates of Wageners, Red Canadas and Kings, unusually solid and well preserved. They will compare well with the finest specimens in the Traverse collection. N. Crane, Battle Creek, exhibits 15 prominent sorts; also a Seedling Crab, which the committee recommend as worthy of further trial. H. Dale Adams' Climax collection consists of 10 varieties of fine apples. N. E. Smith comes from Ionia with 7 varieties, which add materially to the general display. Chas. Merritt, Erastus

Stiles, J. R. Gregory, A. Little, and J. R. Rencher, of Battle Creek, all have a fine show of apples, and swell the list of varieties to nearly a hundred.

In Mr. Lyons' collection we found the largest Red Canadas we ever saw. Also two apples denominated Shearer Seedlings No. 1 and No 2, described in communications appended to this report.* The committee pronounce them very good and worthy the further consideration of the Society.

A seedling grown in Macomb county, on the farm of C. W. Whitney, and shown here by C. L. Whitney, of Muskegon, is very fine. He describes the tree as a good bearer, and says the apple is highly prized by the family. The committee can readily understand this fact after testing the quality of the fruit.

In closing we would congratulate the Society upon the interest manifested by its members, as illustrated in this truly beautiful display of fruit, and as we write with the bountiful table of Michigan apples before us, we feel proud of the old State in which we live, and commend in the highest terms the persistence of our brothers in pomology who have produced such perfect specimens of the king of our northern fruits.

C. CHILSON,
W. E. SMITH,
W. H. ADAMS,
D. G. FOX,
C. N. MERRIMAN.

Your committee would respectfully submit the following report: N. & C. Chilson, of Battle Creek, exhibit three varieties of grapes, Delaware, Concord, and Catawba. The latter and also the Delaware were in a fine state of preservation. G. W. Dickinson, of Grand Rapids, presents a plate of very fine Isabellas, in excellent condition. Mr. Dickinson informs the committee that they have been kept in the following manner: Packed in peach baskets by first putting in a layer of the green grape leaves, then a layer of the grapes and then another layer of leaves, and so on till the basket is full. Mr. Parmelee, of Grand Traverse exhibits three varieties of pears, Vicar, etc. J. A. Robinson, of Battle Creek, seven varieties, Lawrence, Winter Nellis, Beurre Diel, etc. The Lawrence, as usual, is far superior in quality to all others on exhibition. W. H. Adams, of Benzonia, exhibits some fine specimens of Hale's Early in alcohol. Your committee find on exhibition, also, some fine specimens of dried fruits and vegetables exhibited by J. W. Seymour, of Battle Creek. Your committee were pleased to learn that Mr. Seymour has no idea of having his apparatus patented, but is willing to give the benefits of his experiment to all that feel interested in that mode of preserving fruits. Mr. Williams, of South Haven, also presented fruits and vegetables prepared by the well known Williams Evaporator. The committee were interested in some raisins prepared by this evaporator. We hope to see some valuable experiments in this direction in the future.

J. N. STEARNS,
J. A. ROBINSON,
G. W. DICKINSON,
JARVIS ADAMS.

Mr. Merriman made some pertinent remarks as to the reason why the "Maiden's Blush" should be changed from a summer to a fall variety; it is recognized as such by the pomological world—and should be restored to the list of fall apples. The expression of the Society was favorable to the change.

A sharp and prolonged discussion ensued as to the propriety of extending the title of the Society to embrace Horticulture and Floriculture, several members desiring to change the title of the Society to that of "Horticultural."

Mr. Dietrich, of Grand Rapids, gave notice of an amendment to the constitution to that effect. The sense of the meeting was taken as to the retention of the present title of the association, which was largely in the affirmative. This action did not preclude the right of the Society in altering the name of the Society at some future meeting.

*The Shearer Apple originated in the orchard of Hon. Jonathan Shearer, Plymouth, Wayne county, Michigan, now bearing second or third crop. Tree a hardy and vigorous grower, with many thorns. Fruit medium size, roundish, oblate, flattened, varying to ovate, color, yellowish red, fainter on the shaded side, thickly dotted and obscurely striped with dark red, with a plentiful sprinkling of light grey dots large next the stem, and smaller and more plentiful as you approach the calyx which is small and closed, set in a rather wide, shallow, slightly wrinkled basin; stem half an inch long, rather small, inclined to one side; cavity moderately deep, of medium width; skin thick, tough; flesh rather tender, coarse, moderately juicy, with sub acid, pleasant, "good," possibly "very good;" season, October to January; seeds few, very plump.

Prof. Whitney gave notice of an amendment to the constitution defining the objects of the Society.

Mr. A. C. Glidden, of Paw Paw, gave quite a lengthy history and origin of the Paw Paw or "Rubicon" apple, and asserted that Mr. Vick, of Rochester, had recognized its merits and admitted it to his esteem as a fit companion for the other standard varieties of grafted fruits, and accepted it by the name of "Rubicon," the name Paw Paw being inappropriate.

Mr. C. Merritt, of Battle Creek, asked information as to the experience of other members of the Society, regarding the nature, culture and desirability of the "Lawton Blackberry," of which he is a large producer.

Mr. Whitney, of Muskegon, stated that in his estimation the "Wilson" was far superior to the Lawton, and quoted instances wherein it was found preferable for all uses to substantiate his argument.

Mr. Jeremiah Brown, of Battle Creek, defended the Lawton, which he designated as his "old friend," and said there was no berry of that family that could take its place in his estimation, for the table or market purposes.

At 9 P. M. the Society, having finished its business, adjourned *sine die*. The sale of the fruit on exhibition was made by auction, and the proceeds appropriated for the benefit of the Society.

MISCELLANEOUS PAPERS

READ BEFORE THE

MICHIGAN STATE POMOLOGICAL SOCIETY

DURING 1873.

THE EARLY HISTORY OF HORTICULTURE IN MICHIGAN.

BY J. C. HOLMES, OF DETROIT.—READ AT BATTLE CREEK, FEBRUARY, 1873.

MR. PRESIDENT AND GENTLEMEN:—The many very large, rough, hardy pear trees, the many ancient apple orchards and old Morello cherry trees that we find scattered along on the old farms on each side of the Detroit river, testify to us that the early settlers in that vicinity were not unmindful of the value to themselves and their posterity of plantations of fruit trees.

THE PEAR TREES.

The heavy clay soil along the banks of the Detroit river seems admirably adapted to the growth, health, and longevity of pear trees, if we may judge from the present condition of many of these old trees that rise to a height of sixty or seventy feet, and bear large annual crops of very good pears; their origin running back beyond the knowledge of the oldest Frenchman of our time.

Tradition says: Some of the early French missionaries brought pear trees, scions, and trees from Normandy, and planted a few seeds and trees near each little habitation, along upon each side of the river from Monroe to Mt. Clemens. I have seen it stated that several pear trees were brought from France in the year 1749, and planted along the river side from the Brush to the Witherell farm in Detroit, a distance of nearly one mile. How correct this statement may be I do not know, but it seems to be a well ascertained fact that in no other locality in this country can such trees be found as the ancient pear trees that are now standing on the banks of the Detroit river. It is not unusual for them to bear a crop of thirty to forty bushels each.

A short time since, Mr. Wm. L. Woodbridge told me he had many times taken a crop of fifty bushels from one of the old pear trees that stood on his father's farm.

These old trees seem to be as hardy as the oaks of the forest; no disease has ever attacked them, and they flourish under neglect about as well as the Canada thistle. Very few of them receive much care, yet they bear their full annual crop as regularly as a well kept apple orchard.

THE EARLY APPLE ORCHARDS.

In many of the old apple orchards in the vicinity of Detroit we find the Snow apple, the Red and the White Calville, the Pomme Gris or Gray apple, and the Rosseau.

The late Gov. Wm. Woodbridge owned a farm adjoining Detroit on the west. It is now a part of the city of Detroit. About the year 1825 Gov. Woodbridge bought of Grant Thorburn two thousand apple trees and some pear trees, and planted them on his farm, making two good orchards. He had the leading varieties of that day, viz.: The Rhode Island Greening, Baldwin, Yellow Belleflower, White Belleflower, Gloria Mundi, Spitzenberg, Roxbury Russet, Twenty-Ounce apple, Fall Pippin, Early Harvest, Black Gilliflower, and many others. He also had the Snow apple, White and Red Calville, Detroit Red, or Black apple, and Pomme Gris, or Grey apple. The scions of the six varieties last named he procured from some of the old orchards in Windsor and Sandwich, Canada, opposite Detroit, and engrafted them into some of the trees he bought of Mr. Thorburn.

In other orchards in the vicinity of Detroit, where these apples are grown, I find that, for the most part, scions were taken from Canadian orchards near Detroit, and engrafted into the old trees. The farthest back that I have been able to trace these apples towards their origin is 1796.

Some years since, as I was passing through the orchard of Francis Baby, of Windsor, C. W., for the purpose of getting specimens of apples for exhibition, I noticed a very handsome bright red apple, at that time, September, not ripe. Its name Mr. Baby did not know. Mr. James Dougall, son-in-law of Mr. Baby, and a near neighbor, who was well acquainted with the orchard, had never noticed this tree or its fruit, so we concluded to wait till it was ripe and then take another look. A short time afterward I received from Mr. Dougall specimens of this fruit, accompanied by a note, in which he says: "Mr. Baby informs me that he received the original trees, which are yet standing, and from which I take the specimens I send you, from Montreal in 1796, along with other kinds. He thinks it had no particular name, but says it is one of the Calvilles. Captain Cowan, who commanded a small vessel on the lakes, and who had formerly been a gardener to General Washington previous to his being President, brought up the trees in his vessel for Mr. Baby from Fort Erie, and being an excellent grafter, he took scions from each variety received by Mr. Baby, for the purpose of engrafting them into trees in Detroit; I find some of them are very good, while others from the same tree are very inferior; some of the fruit is stained red to the core, and some specimens are white throughout. The specimens with stained flesh are always the best. This remark holds good as against the Red Calville and the Rosseau, which apples belong to the same class."

In this orchard, among the trees brought from Montreal in 1796, were the Snow, Calville, Pomme Gris, and other apples that were leading varieties in the orchards in Canada. I afterward found this handsome but nameless apple in some of the orchards on Grosse Isle, under the name of Bourassa. The only work in which I find the Bourassa apple mentioned is the *Fruit Culturist*, by J. J. Thomas. The apple of which I am speaking does not correspond with his description.

In an English fruit book by William Forsyth, published in 1802, in his list of apples introduced into England from France, I find mentioned Le Calville d' Automne, which, judging from Forsyth's description, I think must be the apple alluded to. Besides this variety he mentions the Pomme Gris, from Canada, and the Red and the White Calville as being highly esteemed in England. The Snow apple or Pomme de Neige, or Famense, known by all these names, is also mentioned by Forsyth. All the fruit books speak of it as a native of Canada.

In Hovey's Magazine of Horticulture for 1851, under the head of "Descriptions and Engravings of Select Varieties of Apples," he says: "The Fameuse, though an apple of American origin, and known to most European writers on fruit from the time of Forsyth, does not appear to have been generally known to American pomological authors. Neither Thatcher or Cox, the earliest authorities, notice it. Mr. Kendrick was the first to give a full account of it, in his American Orchardist. That a variety of so much merit should have not been long since more extensively cultivated is somewhat surprising; for as an autumn apple, both on the score of beauty and excellence, it has few superiors."

THE OLD NURSERIES.

Mr. William L. Woodbridge started a small nursery, mostly of pear trees, on his father's farm in 1833, when a schoolboy. With the help of one man and the attention he could give it, he was quite successful in raising trees. He raised many apples and pears from seed, and some of them were very superior in beauty and flavor. He raised some trees from seeds of the Snow apple; the grain was finer and the skin lighter colored than the true Snow apple, but the flesh had the peculiar flavor and snowy whiteness of its parent.

In 1836 Mr. Woodbridge sold between three and four hundred pear trees from his nursery, to be taken to Chicago. Among them were the Seckel, Summer Bon Chretien, French and English Jargonelle, Pound, Bartlett, and White Doyenne. He thinks this was the first lot of pear trees sold from a Detroit nursery, and that his was the only nursery in Detroit at that time, and it was not a very extensive one.

In the autumn of 1830, or thereabouts, Gov. Woodbridge bought in New York twenty thousand small trees and plants, and had them shipped from Buffalo on a schooner for Detroit. On the way up the vessel put into Huron, and was obliged to remain there until spring, being frozen in. When she arrived at Detroit the trees and plants were found to be dead, the whole lot being a total loss.

THE YPSILANTI NURSERY.

One of the first nurseries established in Michigan, was the nursery of E. D. & Z. K. Lay, near Ypsilanti. A short time since I addressed a note to Mr. E. D. Lay, who still resides on his farm at Ypsilanti, asking some questions with regard to his nursery, in answer to which I received the following, viz:

YPSILANTI, February 10th, 1873.

SIR:—At your request I send you an account of the nursery started and carried on in the town of Ypsilanti, on the plains east of the now city of Ypsilanti.

In the spring of 1833 I came to Michigan, then a Territory, to select a place for establishing a nursery, and selected the above location. In the fall of 1833, my brother, Z. K. Lay, and myself came to Ypsilanti, and brought with us about 25,000 cultivated trees; mostly of one season's growth, from the nursery of Asa Rowe, near Rochester, New York. They consisted of 130 varieties of apples, 75 varieties of pears, 40 of peaches, three of apricots, three of nectarines, 20 of cherries, 20 of plums, three of quinces, 15 of strawberries, 40 of grapes, native and foreign, together with currants, gooseberries, raspberries, etc. Also a large assortment of ornamental shrubs, evergreens, roses, peonies, herbaceous perennial flowering plants, etc.

In the autumn of 1834 we erected a small greenhouse, and filled it with plants; I think this was the first greenhouse built in Michigan.

In the autumn of 1836 we erected a large greenhouse and filled it with a choice collection of tropical plants. I do not know that there was any nursery of fruit trees in Michigan at the time we started ours on the plains near Ypsilanti.

The leading varieties of apples cultivated at that time were the Baldwin, Belleflower, Tart Bough, Canada Red, Snow, Rhode Island Greening, Fall Pippin, Summer Pippin, Green Newtown Pippin, Roxbury Russet, Talman's Sweet, Green Sweet, Esopus Spitzenburg, Swaar, and Twenty-Ounce apple.

The leading varieties of pears were the Bartlett, Buffum, White Doyenne, Flemish Beauty, Seckel, and Stevens' Genesee.

Of peaches, the Early Anne, Sweetwater, Royal Kensington, Prince's Red, Rareripe, Orange, Pound, Barnard, Early York, Malta, and Red Cheek Melocoton. Apricots and Nectarines, we found were too tender for cultivation in this climate.

The principal varieties of cherries cultivated at that time were the Amber Heart, American Heart, Black Heart, Black Tartarian, May Duke, Ox Heart, Carnation and White Tartarian.

The plums were Coe's Golden Drop, Duane's Purple, Green Gage, Bleeker's Gage, Huling's Superb, Smith's Orleans, Washington, and Yellow Gage.

The persons making the first and largest purchases of trees from the nursery, except in our immediate vicinity, were John Bertram, J. Henry, J. D. Pierce, Sidney Ketchum, George Ketchum, C. D. Smith, Isaac E. Crary, and others of Marshall and vicinity.

In the course of the first five years of our nursery we sold trees that went to Lenawee, Hillsdale, Branch, St. Joseph, Kalamazoo, Jackson, Kent, Shiawassee, Genesee, Oakland, Livingston, Wayne, and other counties in this State.

There has been a decided improvement in the varieties of fruit since we started the Ypsilanti nursery, particularly in pears. A large number of the varieties we brought to Michigan proved to be worthless; so also with our collection of apples; a large number of the varieties proved to be unworthy of cultivation in this State.

Of the persons who started nurseries in Michigan between 1837 and 1840, I remember the names of Willis, of Battle Creek, Dunham, near Kalamazoo, and White, near Monroe. Most of them closed their nurseries within a few years.

THE DETROIT NURSERIES.

In 1841, George Foster started a small nursery in Detroit, on Michigan avenue, near Cass street, and in connection therewith a seed store on Jefferson avenue, between Woodward avenue and Bates street. The nursery was called the Detroit nursery. This arrangement continued but a year or two.

In the autumn of 1844 William Adair and George Foster entered into co-partnership, and the firm held forth at what was known as the Michigan Garden; located on Randolph street, between Lafayette and Croghan streets, on the Brush farm, Detroit. They dealt in fruit and ornamental trees and greenhouse plants. Mr. Foster soon retired from the concern, and Mr. Adair has continued the business alone from that time to the present, not having a partner either in business or household affairs. His garden is now located where it has been for many years, on Jefferson avenue, corner of Adair street, near Bloody Run.

At an early day, about 1836, Mr. Charles Hastings started a nursery on his farm in Troy, Oakland county. After a time Mr. A. C. Hubbard became interested in this nursery, and the firm was then Hastings & Hubbard. Subsequently, Mr. B. M. Davis was admitted a member of the firm. Then, for a short time, the firm was Hastings, Hubbard & Davis. After a few years, the health of Mr. Hastings having failed, he withdrew from the firm.

Messrs. Hubbard & Davis purchased some land on the Porter farm, on what was then known as the Porter road, in Springwells. That road is now known as 24th street, Detroit. They moved their nursery from Troy to this location, where it has remained ever since.

Mr. Hubbard died in the autumn of 1871. The nursery is now owned by B. M. Davis. The extensive greenhouses are now owned by Davis, Taplin & Co. Mr. Taplin was an employe of the late firm, but he is now a partner. Mr. Davis has charge of the nursery, and Mr. Taplin the greenhouses.

OTHER NURSERIES.

Mr. T. W. Dunham had a nursery four and a half miles south of Kalamazoo as early as 1840. He called it the Kalamazoo Nursery.

In 1844 Mr. J. B. Noble had a nursery at Ann Arbor, where he sold fruit trees and ornamental shrubbery.

About 1840, Mr. Willis started a nursery at Battle Creek. In the autumn of 1835 I passed through Battle Creek. About the only business going on at this place then was the building a canal to lead the water from one river to the other, so as to utilize it in the running of machinery.

In 1840, Mr. White, familiarly known as Variety White, had a nursery at Monroe.

THE FIRST HORTICULTURAL SOCIETY OF MICHIGAN.

The first Horticultural Society in Michigan, of which I have any knowledge, was partially organized at the Northern Hotel, in Detroit, on the evening of March 5, 1841. At that meeting there were present, Wm. Adair, John Ford, J. C. Holmes, Thomas Hall, M. Howard Webster, John Lumsden, John B. Piquette, Robert Radford, Robert Stead and Henry D. Hastings. J. C. Holmes was called to the chair and Henry D. Hastings appointed Secretary. Having adopted a preamble and constitution, and appointed a committee to draft by-laws, the meeting adjourned to meet at Mechanic's Hall on the evening of March 16th.

On Monday evening, March 16, the Society met according to adjournment. Permanent officers were elected and by-laws adopted.

The officers elected were:

President—John Winder.

Vice-Presidents—John C. Holmes, B. G. Stimson.

Corresponding Secretary—M. Howard Webster.

Recording Secretary—John Lumsden.

Treasurer—Thomas Hall.

COMMITTEES.

On Fruits.—Adrian R. Terry, William Adair, Samuel Barstow, George Duffield.

On Indigenous Plants.—Bela Hubbard, John B. Piquette, F. F. Merceron.

On Trees and Shrubs.—George V. N. Lothrop, Lewis Hall, Bela Hubbard, J. E. Schwarz.

On Vegetables.—Thomas Hall, Robert Stead, H. D. Hastings, Thomas W. Lockwood.

On Green House Plants and Florists' Flowers.—John Ford, M. Howard Webster, John C. Holmes, William B. Wesson.

NAMES OF MEMBERS.

William Adair, Samuel Barstow, Geo. G. Bull, George Duffield, John Ford, Thomas Hall, Henry D. Hastings, John C. Holmes, Lewis Hall, Bela Hubbard, Thomas W. Lockwood, Geo. V. N. Lothrop, John Lumsden, F. F. Mercer, J. H. Morris, William R. Noyes, John B. Piquette, Francis Raymond, Robert Stead, John E. Schwarz, B. G. Stimson, Adrian R. Terry, John Winder, M. Howard Webster, Wm. B. Wesson.

In 1841 the Society held several exhibitions of horticultural products, as well as meetings for conversation, lectures and discussions.

For the purpose of showing what were the leading varieties of fruit under cultivation, and who were some of the fruit-growers in and near Detroit at that time, twenty-six years ago, I will give the names of some of the exhibitors and the fruits exhibited in 1847. Among the varieties named you will probably recognize some that were long since discarded, and stricken from the list worthy of general cultivation in Michigan.

At the Society's exhibition of August 24th, 1847, Mr. Marvin Hannah, of Albion, exhibited Red Magnum Bonum, Blue Gage, Green Gage, Yellow Gage, and Damson plums.

Bela Hubbard, of Springwells, French Jargonelle and seedling pears, Imperial Gage and Blue Gage plums.

A. C. Hubbard, of Troy, Orange Pippin and seedling apples of 1846, and Bleeker's Scarlet plums.

J. C. Holmes, Detroit, a collection of apples and pears.

James Dougall, Amherstberg, C. W., Prince's Yellow Gage, Purple Seedling, Pond's Seedling, Imperial Gage, Blue Seedling, Mediterranean and Washington plums. American Summer Pearmain, Summer Queen, Hawthornden, Sweet Bough, Keswick Codlin, Alexander, and Lyman's large summer apples, and English Jargonelle pears.

Zeri Phelps, Plymouth, Cheseborough Russet, Golden Pippin and Sweet Bough apples. Prince's Imperial Gage plum.

Roswell Root, Plymouth, Early Harvest, Spice Sweet, and Golden Pippin apples.

H. Weeks, Plymouth, one dish and three large clusters of Washington plums.

Jonathan Shearer, Plymouth, Prince's Imperial Gage plum, and Red Rare-ripe peaches.

John G. Welch, Plymouth, Sweet Bough, Golden Pippin, and Sweet Spice apples.

John G. Bennet, John Tibbets, M. Shutts, E. J. Penniman, D. Averill, H. Frailick, John Westfall, Wm. Blackmore, H. B. Holbrook, Andrew Bradner, David Warner, John Kellogg, Graftor Warner, E. Starkweather, John Barker, John Miller, Moses Lyon, and Henry Lyon, each exhibited early apples, mostly Sweet Bough, Spice Sweet, and Golden Pippin.

James V. Campbell, Detroit, a large cluster of Blue plums, Mediterranean plums, and Black Cluster grapes. All these fruits exhibited in August were, of course, early fruits. You notice that plums were very plenty then, the *Orculio* not being so destructive in this State as it has been since.

I will now give a memorandum of the names of some of the exhibitors and fruits presented at the exhibition on the 28th and 29th of September, 1847.

Dr. Cobb, of Detroit, exhibited Albert Gallatin, Teton de Venus, Orange Cling, Red Cheek Melocoton, and Seedling peaches; also some Isabella grapes.

James Dougall, of Amherstburg, C. W., now of Windsor, C. W., where he has a nursery, exhibited Isabella, Catawba, Black Cluster, Fox, White Muscatine, Golden Chasselas, Esperione, Black Frontignan, Green Swiss, and Sweet Water grapes. Purple Gage, Coe's Golden Drop, and Damson plums. Red Rareripec, President, and Monstrous Pomponne peaches. Passe Colmar, White Doyenne, and Easter Beurre pears. Ribston Pippin, Alexander, Hawthornden, Pennock's Red Winter, Small Pomme Gris, Domine, Keswick Codlin, Flushing Spitzenburg, Large Pomme Gris, Labute, White Calville, Royal Russet, Monstrous Pippin, Bourassa, American Summer Pearmain, Pomme de Neige, Baldwin, King of the Pippins, Esopus Spitzenburg, Male Carle, or Charles apple, Bullock's Pippin, Scarlet Pearmain, and Rosseau apples.

Charles Hastings, of Troy, Oakland county, exhibited Virgalieu, Bleeker's Meadow, Marie Louise, Summer Bon Chretien, Autumn Bergamot, and Stevens' Genesee Pears. Pound Royal, Summer Queen, Summer Pippin, Tallman's Sweet, Wine, Yellow Bellefleur, Holland Pippin, Baldwin, Rhode Island Greening, Yellow Newtown Pippin, Detroit Red, Monstrous Pippin, Swaar, Westfield Seek-No-Further, Twenty-Ounce Pippin, Doctor, Court Pendu, Plat, Roxbury Russett, Pomme d' Neige, Pound Sweeting, Romanite, Golden Sweet, French Pippin, Hubbardston Nonsuch, and Esopus Spitzenberg Apples. Orange, Portugal, and common quince, Alexander grapes, and Pineapple peaches.

J. R. Williams, Constantine, exhibited Buffum pears, Maiden's Blush, Holland Pippin, Pomme d' Neige, Rhode Island Greening, Fall Pippin, and several varieties of apples not named.

Hubbard & Davis, Troy, exhibited Pineapple Cling, Incomparable, Orange Cling, Albert Gallatin, Red Cheek Melocoton, Columbia, and Melish's Favorite peaches. Also a large collection of apples, and a few pears and grapes.

James Allen, Pontiac, exhibited Twenty-Ounce Pippin, Fall Pippin, Detroit Red, Spitzenberg, Rhode Island Greening, Cheseborough Russet, Golden Pippin, and several other varieties of apples. French Jargonelle, Stevens' Genesee, and English Jargonelle pears.

Jabez Warner, Plymouth, from the orchard of a neighbor, Twenty-Ounce Pippin, and several other varieties of apples.

Rev. Mr. Ruggles, of Pontiac, apples and quinces.

James M. Edmonds, Ypsilanti, Catawba and Isabella grapes.

Bela Hubbard, Detroit, apples, pears, plums, quinces, and grapes.

Linus Cone, Troy, collection of apples.

There were many other exhibitors, but the names of exhibitors and the kinds and varieties exhibited already mentioned will suffice to show us what fruits were grown in the several localities, and by whom they were raised.

Many excellent varieties of fruit have been added to our list since that day.

In addition to the names of exhibitors already given, there were at subsequent exhibitions, in other years, several persons who exhibited large collections of apples, pears, peaches, plums, and grapes. Among them I may mention E. D. Lay, of Ypsilanti; O. M. Bronson, Waterford; B. G. Stimson, Detroit; William B. Wesson, Detroit; A. Whitehead, of Pontiac, and J. L. Travers, Mount Clemens.

Judge Barker, of Plymouth, made collections from the orchards in that town,

and entered them for exhibition in the names of the proprietors of the orchards. He took great interest in the welfare of the Society, and was generally present at the exhibitions, bringing large collections of fruits from Plymouth gardens and orchards.

At the annual meeting of the Society in March, 1848, the following officers were elected:

President—J. C. Holmes.

Vice Presidents—M. Howard Webster, W. R. Noyes.

Corresponding Secretary—Thomas W. Lockwood.

Recording Secretary—Francis Raymond.

Treasurer—W. B. Wesson.

At the annual meeting held in March, 1849, the officers elected were:

President—Rev. George Duffield.

Vice Presidents—Bela Hubbard, B. M. Davis.

Recording Secretary—W. Isham.

Treasurer—Wm. R. Noyes.

Corresponding Secretary—E. R. Kearsley.

At the annual meeting held in March 1850, the following officers were elected:

President—Rev. Geo. Duffield.

Vice Presidents—E. R. Kearsley, B. M. Davis.

Recording Secretary—B. G. Stimson.

Corresponding Secretary—M. Howard Webster.

Treasurer—F. Raymond.

The officers elected for 1851 were:

President—B. G. Stimson.

Vice Presidents—John Ford, T. H. Hinchman.

Recording Secretary—Bela Hubbard.

Corresponding Secretary—Wm. Adair.

Treasurer—F. Raymond.

Librarian—Bela Hubbard.

The officers elected for 1852 were:

President—A. C. Hubbard.

Vice Presidents—Thos. W. Lockwood, F. Raymond.

Recording Secretary—Chas. Betts.

Corresponding Secretary and Librarian—Bela Hubbard.

Treasurer—Stephen Smith.

The interest in the Society was well kept up until 1852. In that year there was a great falling off. There were four exhibitions held in 1852, but they were very small compared with other years.

At the annual meeting held in March, 1853, there were but few persons present, and the Society then died out.

As the Society now here in session is a Pomological Society, I have spoken only of the fruits exhibited by the Detroit Horticultural Society, thinking you would be more interested in the history of the fruit department than in the department of flowers and vegetables, and it would make my paper too lengthy to speak of all the departments in detail; but our tables were always graced with an abundance of beautiful flowers and excellent vegetables. Indigenous flowers from our own fields and forests always held a conspicuous place in the show.

I think I do not like the name of Pomological Society as well as I do that of

Horticultural Society, for the former designates only one department of horticulture, while the latter embraces the whole of horticulture.

I am fond of delicious fruits; I am equally fond of beautiful flowers. I love to see a well kept orchard; so also a well kept garden. I love to see the choicest products of each on exhibition by the same Society, and an endeavor on the part of the Society to foster the cultivation and exhibition of Flora's riches as well as the riches of Pomona. I am glad to know that although this Society makes the advancement of the pomological interests of the State its leading object, it does not ignore flowers, but has a place for them in its premium list.

THE MICHIGAN NURSERYMEN AND FRUIT GROWERS' ASSOCIATION.

On the 9th of September, 1853, a convention of nurserymen from the southern part of Michigan was held at Jonesville, Hillsdale county. The object of the meeting was to establish, as nearly as possible, uniform prices for fruit trees; also for the purpose of discussing such subjects connected with horticulture as might be deemed interesting and beneficial, not only to nurserymen, but all the citizens of our State.

A schedule of prices was reported to the convention, and after some discussion it was adopted. This meeting adjourned to meet at such time and place as the Chairman and Secretary might deem fit to appoint.

In pursuance of this adjournment, a convention of nurserymen and fruit-growers was called, and met at Adrian, Michigan, on the 24th of February, 1854. At this meeting the following gentlemen were present: B. W. Steere, Isaac Chase, A. G. Eastman, D. K. Underwood, and B. F. Strong, of Adrian; Chas. E. Perigo, Toledo; John Merritt, Tecumseh; C. H. Hageman, Blissfield; C. C. Cooley, Hudson; Haynes Johnson, Jr., Hillsdale; Jesse Maxson, Pittsford; John T. Blois, Jonesville; J. C. Holmes, Detroit; A. K. Bentley, Monroe.

The meeting having been called to order, J. C. Holmes, of Detroit, was called to the chair, and J. T. Blois, of Jonesville, elected Secretary.

After the transaction of some business, the following list of prices was reported, discussed, and adopted:

Resolved, That our price for apple trees of medium size, or from five to seven feet high, shall be not less than 18½ cents each, nor less than \$16 per hundred; extra sized trees at proportionate prices. Dwarf apple trees, from 25 cents to 37½ cents each. Plum trees shall not be sold less than 50 cents each. Our price for peach trees shall not be less than 20 cents each, or \$15 per hundred. Apricot and nectarine trees, on peach stocks, shall be from 37½ to 50 cents each. Our price for hardy grapes, two to three years old, shall not be less than 25 cents each.

The following constitution was then adopted:

ARTICLE 1. This Association shall be called the Michigan Nurserymen and Fruit Growers' Association.

ARTICLE 2. Any practical nurseryman, fruit-grower, or friend of horticulture may, by a vote of the Society, become a member.

ARTICLE 3. The objects of the Association shall be to extend the acquaintance of the members, and to advance generally the horticultural interests of this and neighboring States.

ARTICLE 4. The officers shall consist of a President, Vice-President, and a Secretary who shall also act as Treasurer. They shall be elected by ballot, and hold their offices for one year, or until their successors shall be elected. They shall perform the duties usually devolving upon such officers, and form an Executive Board.

ARTICLE 5. The Society shall hold annual meetings on the first Tuesday in December, at which time the annual election of officers shall be held.

ARTICLE 6. By-laws not inconsistent with this constitution may be adopted, and from time to time be altered and amended at any annual meeting by a vote of two-thirds of the members present.

The Society adjourned to meet in Adrian the next June, but for some cause it did not meet again until the 9th of January, 1855, when it held its annual meeting in Adrian.

No permanent officers having been elected, J. C. Holmes, of Detroit, was called to the chair, and J. T. Blois elected Secretary.

On motion of Mr. Perigo, of Toledo, Ohio,

Resolved, That the afternoon session be devoted to the regular business of the Association, and, at the request of several citizens of Adrian, that the evening be devoted to a general conversation and discussion of subjects connected with horticulture.

The following gentlemen were elected members of the Association :

Sterling Perkins, White Pigeon; Rev. E. H. Pilcher, B. J. Harvey, Ira J. Thurston, J. Mandeville, Chas. M. McKenzie, J. N. Chandler, Adrian; S. O. Knapp, Jackson; Harvey Smith, Pine Lake; Warren Gilbert, Rome; Henry P. Hanford, Bristol, Indiana; Wm. H. Loomis, South Bend, Ind.; Dr. E. M. Hale, Jonesville, Mich.; Lewis Miller, Lockport, Mich.; Mr. Wilcox, Flint; Wm. Bort, Niles, and M. L. Dunlap, Leyden, Cook county, Ill.

The subject of cleaning seeds of fruit trees and raising seedlings was introduced. Mr. Bentley, of Monroe, Mr. Thurston, of Adrian, Mr. Holmes, of Detroit, Mr. Steers, of Adrian, Mr. Blois, of Jonesville, and Mr. Bort, of Niles, participated in the discussion.

The subject of grape culture was discussed by Messrs. Pilcher, Holmes, Steers, and Perigo.

In the evening the Society met at the office of T. M. Cooley, now Judge Cooley.

Specimens of several varieties of apples were presented for consideration by Messrs. Scott, Strong, Cooley, Eastman, and others.

The subject of apples being introduced, the discussion was participated in by Messrs. Underwood, Scott, Steers, Cooley, Strong, Eastman, and McKenzie, of Adrian; Perigo, of Toledo; Blois, of Jonesville; Perkins, of White Pigeon; Bort, of Niles, and Holmes, of Detroit.

The subject of strawberries was then discussed by Dr. Underwood, Messrs. Perigo, Bort, Scott, Strong, Steers, and Cooley.

The constitution of the Society was then amended by striking out, in article 5, the words, "The first Tuesday of December," and inserting the words, "The second Tuesday of January," so as to bring the annual meeting of the Society on the second Tuesday in January instead of the first Tuesday of December.

The following officers were then elected for the ensuing year :

President—J. C. Holmes, Detroit.

Vice President—J. E. Perigo, Toledo, Ohio.

Secretary and Treasurer—J. T. Blois, Jonesville.

The third annual meeting was held at Jackson, on the 8th of January, 1856.

The following gentlemen were elected members of the association, viz. : J. E. Beebe, W. R. Gibson, J. T. Wilson, D. Cook, W. T. Howell, R. Dunning, Dr. E. Foote, J. M. Harwood, M. McNaughton, and Wm. Hayden, of Jackson; E. Moody, Wright's Corners, N. Y.; Ira C. and A. A. Olds, of Hartford, Van Buren county, Michigan.

The schedule of prices of fruit trees adopted at a former meeting was discussed, and some amendments offered, but not adopted. Messrs. Dunning, Blois, Wilson, Moody, Cook, Holmes, Knapp, and Ira C. Olds took part in the discussion. Many specimens of apples were placed on exhibition by the members present. On motion, the question of the best manner of separating seeds

from the fruit and cleaning them was brought up for discussion; also the treatment and culture of stock seedlings. Messrs. Blois, Steers, Moody, Wilson, Beebe, Dunning, Foote, and Holmes took part in the discussion.

The association then discussed the question of pruning in the nursery.

At the evening session on the 9th of January, the examination of fruits, and the discussion of their respective merits, occupied the evening. Messrs. Cook, Moody, Holmes, Gibson, and Blois were the principal speakers.

On the 10th of January, at the morning session, the pear and the grape questions were discussed by Messrs. Moody, Knapp, Beebe, and Holmes.

The association then proceeded to the election of officers for the ensuing year with the following result.

President—A. C. Hubbard, Detroit.

Vice President—J. T. Blois, Jonesville.

Secretary—W. R. Gibson, Jackson.

The meeting then adjourned to meet at Jackson on the 2d of September.

On the 2d of September, 1856, the association met at Jackson. The President, Mr. Hubbard being absent, the chair was occupied by the Vice President, J. T. Blois, of Jonesville.

The following gentlemen were elected members: S. B. Noble, James De Puy, T. E. Gidley, H. T. Buck, P. B. Loomis, and S. Gidley.

A large collection of fruit was exhibited at this meeting.

The principal questions discussed during the session were, the quality and the cultivation of several varieties of apples, pears, peaches, strawberries, and grapes.

These discussions were participated in by Messrs. Foote, T. E. Gridley, Wilson, Knapp, Bort, Noble, Blois, and Steers.

Another question discussed was, the frauds that had been practiced upon western nurserymen and amateurs by eastern vendors of trees.

The Society then adjourned, and this was the last meeting this Society ever held.

The Nurserymen and Fruit Growers' Association having been winter-killed, or from some other cause having died out, there was a call from Clinton county, Kalamazoo county, and other places for a meeting to be held at Jackson, for the purpose of organizing a State Horticultural Society.

In September, 1857, pursuant to this call, a meeting was held at Jackson, to form a State Horticultural Society. The meeting was called to order by C. K. Gibson, of Jackson. T. T. Lyon, of Plymouth, was elected chairman, and V. B. Merwin, of Moscow, Secretary.

A constitution and by-laws were adopted. The association was organized as the Michigan State Horticultural Society.

The following officers were elected, viz.:

President—H. G. Wells, of Kalamazoo.

Secretary—R. F. Johnstone, of Detroit.

Treasurer—P. B. Loomis, of Jackson.

Directors—Hiram Walker, Detroit; D. K. Underwood, Adrian, John T. Blois, Jonesville; Linus Cone, Troy; G. W. Nelson, Grand Rapids; Wm. Bort, Niles.

After the reading of letters from persons who were unable to be present, the Society adjourned.

The first annual meeting of this Society was held, under very favorable auspices, at Kalamazoo, on the 7th of January, 1858.

There was a large attendance and a good exhibition of fruit. An extract

from a Kalamazoo paper says: "The display of fruit was large and most beautiful, one of the finest ever made in this State. Indeed, we are assured that, for excellence, beauty, and variety, this collection surpassed the exhibit of the New York State Horticultural Society, made at Rochester last winter, said to have been one of the best ever made in that State. Over one hundred different varieties of winter apples, raised in this State, were here exhibited, arranged tastefully on plates spread upon a double row of tables, showing all varieties of size, flavor and color, from the monstrous Pippin down to the rusty Pomme Gris, or the sprightly, blushing Lady apple."

At 3 P. M. the meeting was called to order by the President. The Secretary being absent, Mr. T. T. Lyon, of Plymouth, was elected Secretary *pro tem*.

The following officers were elected for the ensuing year:

President—H. G. Wells, of Kalamazoo.

Vice Presidents—E. T. Graves, of Battle Creek; B. W. Steers, of Adrian.

Secretary—T. T. Lyon, of Plymouth.

Treasurer—Stephen S. Cobb, of Kalamazoo.

The Society continued in session three days, during which time considerable business was transacted. The President delivered an address upon the subject of horticulture; several committees were appointed to report upon various subjects connected with horticulture; reports that were made by these committees were discussed; a list of apples was recommended for general cultivation; a list was made of apples that promise well, and a list that was, in the opinion of the Society, unworthy of cultivation.

Contributors of fruit were, A. C. Hubbard, Detroit; Jeremiah Standard, Ionia; Samuel Johnson, Kalamazoo; J. T. Wilson, Jackson; D. McKee, W. Taylor, E. Merrill, Geo. D. Rice, S. S. Cobb, and A. Buell, of Kalamazoo; Joshua Clemens, Leoni; B. Hathaway, Little Prairie Ronde, and T. T. Lyon, Plymouth.

This Society held an exhibition in Detroit on the 30th of June and 1st of July, 1851. The specimens of horticultural products exhibited were excellent, but not so abundant as the officers of the Society had reason to expect, consequently there were but few visitors. The exhibition seems to have been almost an entire failure with regard to the number of articles exhibited, and the number of visitors in attendance.

I think this was the last effort the Society made to hold an exhibition of horticultural products, or a meeting of any kind. It went the way of all the rest,—died out.

In those early days of which I have spoken, we had no trouble in ripening peaches and plums in Detroit; but the subsequent cold winters, and the curculio, have wrought somewhat of a change in that regard. Peach trees grow stronger, and I think they are more healthy and longer lived, grown in a heavy, strong soil like that of Detroit, than in light soils. I have never seen a case of the Yellows there; sometimes, in a cold, wet, backward spring, the leaves curl and fall off, but the trees soon recover from this.

The borer is not so fond of working in peach trees grown on a heavy soil, as they are in trees grown on a light soil.

I have now spoken of some of the fruit trees of olden times, and of associations that have had their day and retired from the field. The new Pomological Association you now have before you: it is not only new, but it is strong, active, and energetic. You and I are part and parcel of it. I hope it will be well sustained, so that it may accomplish the good it seeks to do.

J. C. HOLMES.

THE DISCUSSIONS OF THE SOUTH HAVEN POMOLOGICAL SOCIETY.

SOUTH HAVEN, Mich., December, 1873.

J. P. Thompson, Esq., Secretary Michigan State Pomological Society:

DEAR SIR:—I send you herewith such extracts from the weekly reports of the South Haven Pomological Society, for publication in your annual report, as may possibly be of interest to its readers.

Our Society was organized for the purpose of stimulating and developing the fruit-growing interest in this section, and for increasing our knowledge in all that pertains to fruit culture as a business and a science.

We have derived much benefit from the weekly comparison of experience and discussion of such questions as came up from time to time in reference to the culture of trees, the prevention of the ravages of insects, and gathering and marketing of fruits.

C. T. BRYANT,

Secretary South Haven Pomological Society.

SOUTH HAVEN POMOLOGICAL SOCIETY.

SOUTH HAVEN, Feb. 3, 1873.

Some statements were made in regard to the last "cold snap." The very coldest seems to have been about 9 P. M., January 28th. At that time Mr. N. Phillips reports 12° below 0, and Mr. A. S. Dyckman 8° below 0, his thermometer being on the north and windward side of his house. Mr. H. E. Bidwell also reported 8° below 0, his thermometer hanging in a peach tree in open orchard.

Mr. Bidwell, by request, read his part of the report to the "Vienna Exposition" in regard to the peculiarities of this section. It is well worth looking out for when it is published.

SOUTH HAVEN, Jan. 6, 1873.

Question.—"Procuring trees to plant."

Mr. Bidwell remarked that peach pits affected with the yellows never produced a saleable tree. They were small and sickly in appearance.

Mr. J. Bull had heard it remarked that the pits of frost or seedling peaches produced the most vigorous trees.

Mr. A. T. Penniman stated such was the fact, and the same was true of the plum.

Mr. H. E. Bidwell said the hardiest stocks were from very old seedling trees in the South, though they were not strong growers. Almond stocks were twice as long lived as peach. The roots of trees were affected by the variety budded on them, and partook of the same nature, so much so that nurserymen could often distinguish varieties by the peculiar form of the roots.

Mr. J. F. Crowley stated that he had seen seedling peach trees a foot in diameter, growing wild in the pine forests of Virginia, loaded with very good peaches.

Mr. J. Bull stated that he saw seedling trees 30 years old bearing good crops—peaches poor. He had been informed that in New Jersey the trees were so short lived they planted them far apart, setting others between them, year after year, cutting each successive planting out when seven years old.

Mr. D. B. Williams said he had lived in the New Jersey peach country, and had never saw that done. Trees were short lived, and only were expected to bear two or three good crops; but they planted new orchards on fresh ground. Trees from seedling pits were best.

Mr. A. J. Pierce told of a tree on his father's place, seven miles southeast of here, from a double pit, a seedling, nearly a foot through, which had never failed of a crop since of bearing age.

SOUTH HAVEN, Jan. 20, 1873.

The question for consideration was "How shall we protect our fruit from the codling moth?"

Mr. N. Phillips stated that he had a large apple orchard in Illinois which became badly infested with the codling moth. He turned sheep into it just after the fruit was out of blossom. They ate up the small apples which dropped from the trees, and as a consequence he had upwards of 900 bushels of nice apples.

Mr. D. B. Williams said he had an apple tree which required support,—to protect the tree from chafing, a cloth bandage was wrapped about it, which remained on two years. When this was removed he found cocoons and remains of many moths, and furrows burrowed in the bark, which he supposed were made by the moths or worms. This seemed to confirm the practice recommended by some, of wrapping bandages about trees to trap the moths. He don't know of any better way to catch and destroy them.

Mr. C. H. Wigglesworth had read of a man who shook the trees very early in the season, and destroyed all the apples that fell. He noticed a very decided effect the first year, and after doing so three years almost rid his orchard of the moths. He thought that if every man who has an apple orchard would take the pains to pick up all the apples which fell prematurely, and destroy them, or turn in sheep or hogs to do this, we would not be damaged much by them.

Mr. L. H. Bailey referred to an orchard which had been pastured by hogs and calves for several years, in which the moths did much more damage than in his, which had been constantly cultivated.

Mr. C. H. Wigglesworth suggested that he probably destroyed many by burying them.

Mr. N. Phillips explained that in the orchard to which Mr. Bailey referred the hogs had not been turned in until after the grass was mowed, or nearly got its growth, which was after the first brood had escaped from the small apples, and too late to do much good. He once picked up the small apples which fell from a large orchard, and put them in a bin, intending to feed them out. After a few days he tried to lift the cover, but could not without using as much force as if it were tightly nailed down. He found the crevices of the boards packed full of the worms forming cocoons, and so firmly cemented together by these that he could hardly separate them. They had gnawed the boards a great deal. He was satisfied from this that the first brood matured early enough to work in the balance of the crop, so that if we would destroy these, we would save the later fruit.

The Secretary read an article from the report of the State Society, which stated that a Mr. Brown, of Benton, Mich., had experienced great benefit by tying bandages of cloth about the trees early in the season, removing them once a week, and destroying the worms by running the cloth through a clothes wringer.

Mr. L. H. Bailey exhibited specimens of Rubicon apples from the orchard of Mr. Briggs, of Arlington. The exceedingly beautiful red color, the very smooth skin, the firmness, crispness, and rich flavor of these apples, was remarkable.

SOUTH HAVEN, Feb. 10, 1873.

Statements in regard to fruit prospects for the coming season were the order of the evening.

The Secretary stated that he examined his peach buds carefully on the 7th instant, taking twigs from a foot to eighteen inches long. He inspected every bud about two-thirds of the way from the base of the twig, fifty buds each of several varieties, and found alive, of Crawford's Early, 30 per cent; of Hales' Early, 72 per cent; of Barnard's Early, 90 per cent; of Jaque's Rareripe, 46 per cent.; of Stanley's Late, 90 per cent. If only one-third of these buds develop peaches, from one-third to one-half ought to be pulled off. His trees are from three to five years set, and on clay loam soil, under-drained.

Mr. H. E. Bidwell stated that his vineyard made a good showing. Of some varieties there was not a bud injured, while the most tender native variety, the Iona, showed for a fine crop. Of the Kittatinny blackberry, the majority of the canes were not injured. His Rockport cherry buds (a tender variety) were all right.

Mr. A. E. Voorhees had only examined a few of his peach trees. He found a large per cent of his Crawfords good, and the Sweetwater nearly all good. His pear trees looked bright and all right.

Mr. N. Phillips had inspected a variety of two-years-old peach trees and found plenty of good fruit buds on them.

Mr. D. B. Williams had only examined some trees near his house, and found of Hale's and Barnard's Early nine in ten alive. He had just visited Lima and Kendallville, Ind., there the peach buds were all killed and the wood of some trees frozen back considerable.

Mr. J. Pierce said he had examined a Keyport White peach tree in his yard, and found nine-tenths of the fruit buds alive.

Mr. Clapp, who sent some specimens of Cook's Greening apple from Chatham Center, Ohio, several weeks since, which were picked in October, 1871, and one of which is now in Mr. Bidwell's care, in good condition, was asked to tell what he knew of it. He stated that his father in Ohio had one tree about ten years old, a strong, thrifty grower. It bore young, and had borne a good crop every year. Each crop had been kept until all other apples were gone, before being used, and a part of each crop over a year. They had kept them fifteen months on shelves in the cellar, without extra care, and used them in good condition. A year from the time they were picked they would pass for the new crop fresh gathered. They were not of first rate quality, but of good size and very acceptable after other apples were gone. The apple is of a pale, yellowish green color.

Fruit prospects will be considered again next week, especially small fruits. Take observations and report.

SOUTH HAVEN, March 11, 1873.

Notwithstanding the rain there was a good attendance of the members, besides several gentlemen from neighboring towns.

The question for the evening was "pruning and cultivation," but that the visitors might have an opportunity to speak on other matters, strict attention to the question was waived by vote.

Mr. R. L. Bonfoey, having during the day examined the buds in various peach orchards hereabouts, was asked to state the results of his observations. The sum of his statements is, that where the trees were poorly cultivated and in a stunted condition, or on very wet, cold ground, he found an average of about one-half the buds alive, and where the trees were vigorous and the wood very bright the buds were injured very little; of some varieties not more than one-tenth being killed.

Mr. L. I. Bragg, of the Kalamazoo nurseries, being requested to give his experience in orchard culture, stated that he had little experience in the cultivation of trees out of the nursery, but he considered that an orchard to succeed well should be cultivated thoroughly, the same as any other crop.

Mr. A. J. Pierce stated that he had just examined his peach buds. He looked at Early Crawford's, Early Barnards, and Morris White, and judged that if one-tenth of the buds now alive made peaches there would be plenty. His orchard was well cultivated.

Mr. A. T. Penniman had to-day examined his orchard, and found his peach trees in much better condition than he expected. Stanley's Late appeared about as though we had had no winter; of Jacques Rareripe one-third were alive. His pear trees were not hurt a particle.

Mr. D. Howard said he had lost some trees by leaving cavities about the roots of the trees, after looking for borers in the fall; these holes filled with water which froze and killed the roots. He believed in cultivating orchards thoroughly in the spring, commencing very early, so as to get an early growth, and then to stop cultivating in time to allow the wood to ripen early. He never knew of buds of well ripened wood to winter-kill here, and he had lived

here twenty years and raised seventeen successive crops of peaches. They needed thinning, and some of his trees each year broke down for want of it.

Mr. J. Lannin said he planted sixty pear trees five years ago; was inexperienced, and did not cultivate them much, and they did poorly the first two years; but the last three years he had learned to cultivate them properly, and they had done finely. A year ago last spring he planted two hundred and sixty pear trees on a piece of ground from which he had grown the previous year thirty-two bushels of Soule's wheat per acre.

Mr. A. S. Dyckman gave his method of cultivating a peach orchard to be early deep plowing, about five inches deep, bearing out the plow on approaching the trees; afterwards constant light cultivation, with a double cultivator, until the peaches began to ripen. He hoed about the trees where the cultivator did not reach. The dryer the weather, the more need of frequent cultivation. In plowing, he noticed whether the ground had been left deepest near the trees, or in the center, by previous working, and regulated the depth accordingly.

Mr. S. M. Howell, of Pier Cove, favored early thorough cultivation. He plowed very late in the fall, or very early in the spring, and then light cultivation through the early part of the season.

Mr. D. C. Loveday had made examination of his peach trees. On young trees set three years he found fully two-thirds of the buds alive; of Hale's Early, Early Barnards, and Keyport White, he found nineteen buds good to three bad; most of the dead ones were near the ends of the twigs, while the terminal buds were all right. He cultivated his apple orchard so as to pasture hogs in it to eat up wormy fruit; cultivated as far as the branches extended, and seeded strips between the rows to clover.

Mr. Histed said that in his soil, a clay loam, increased cultivation blighted his pears and quinces.

Mr. D. C. Loveday believed in thorough cultivation; has not cultivated sufficiently to see any effects of blight; soil, clay loam; prunes apples and pears in June, does not use wax on thrifty trees; prunes peaches in the spring, and late in the fall; plows after the leaves fall, and thinks fall plowing a great benefit to the soil—it also destroyed the cut-worm; others questioned it, and the matter was referred to our able Entomologist.

President N. Phillips called upon the Secretary to read Prof. Cook's letter of acceptance. After thanking us for the honor conferred upon him in the appointment of Entomologist, he says: "I shall be most happy to do what I can for you in the Entomological line, and will, if able, name and give habits of any insects sent to me, and will advise with you as to the best remedies, if noxious. I hope the members of your Society will be very free to send me insects in whose natural history they feel any interest. Insects may be sent by mail in a close tin box; no provision for air need be made, nor for food if the insect is in its last stage; if in the larvæ or worm condition, put in the box some of the fresh foliage which serves as its food. Care is requisite to furnish the leaves on which it has been observed to feed. Full accounts should also be sent of all the observations made, kind of food, general habits, etc."

On the resumption of the discussion Mr. A. S. Dyckman said he understood that early pruning was for wood and late pruning for fruit; would not fall plow peaches on account of the liability of starting the sap in a warm spell; increases the cultivation in summer, as the dry weather increased; would stop cultivation as the different varieties of peaches ripen.

Mr. C. H. Wigglesworth would plow peaches early in spring, and cultivate

once a week, until the fruit ripened; would cultivate no matter whether there were weeds or not; would not cultivate pears or quinces, except when young; would seed and mulch; soil, a clay loam; would not cultivate grapes later than July.

Mr. Lannin thought no injury could result in late fall plowing pears or apples; thinks a surplus of plant food in the soil an injury rather than a benefit; his soil is a clay loam. He prunes at any time; trees are young.

Mr. J. Williams said it was the habit of most peach trees, that the buds on four or five inches of twigs, near the end, were not fully developed and would drop off in the spring. In regard to planting peach orchards, he said we got trees too old, so that in digging them, it was necessary to cut off the tap roots. The best way was to plant the seed where we wanted the trees to stand, and graft the stock, or else to get young trees and take pains to preserve all the tap root. Most men would cut off the tap root to make the tree stand level.

Mr. B. F. Dresler, of Pier Cove, called the attention of the Society to a peach box, he said it was no patent, nor one in which he had any manufacturing interest. He said the first men of Saugatuck, Douglas, and Pier Cove, felt that when there was a large crop of peaches, the present cost of baskets and transportation was too great for satisfactory profit, and they proposed to co-operate to effect some improvement and reform. The box was similar to the ordinary cases for berry boxes, to hold half a bushel, and made with a double partition, so that when necessary they could easily be divided with a pocket-knife into two peck boxes.

The merits of the box were discussed at length.

Mr. Dyckman thought it was too much trouble to pack well in boxes.

Mr. Dresler proposed to tack the lid on first, and pack from the bottom.

Mr. J. Williams thought they would be advantageous in shipping hard peaches long distances, but for the near markets, they concealed the peaches too much. It was difficult to pack large ripe peaches in them. Then, he thought, custom work would soon bring down the price of a half-bushel box to that of ordinary baskets. He thought commission men would not bother with cutting the boxes apart.

Messrs. Dyckman, Williams, and others, however, favored giving the matter consideration.

Mr. Dresler claims that this box will reduce the cost of packages and transportation one-half.

Mr. Lannin moved a vote of thanks to Mr. Dresler and Mr. Howell for their kindness and disinterestedness in coming here and presenting this matter for our consideration. The vote was heartily given.

The subject of cultivation and pruning will be continued next week.

SOUTH HAVEN, March 17, 1873.

The South Haven Pomological Society met this evening, to complete the discussion on cultivation and pruning. The question was well represented in the presence of one of Mr. Loveday's five-tooth cultivators, which does very efficient work in clean soil. The interest taken in examining it showed that the members of the Society believe in thorough cultivation.

Some fine apples on the table for a name, presented by I. S. Linderman and

grown by J. C. Robinson, of Hartford, in Van Buren county, convinced all present by their size, eleven and one-half inches in circumference, that he too, believed in thorough cultivation. They were pronounced King of Tompkins County, a very valuable variety, but not an excellent keeper, and inclined to windfall.

Mr. M. H. Bixby showed a basket of fourteen varieties of apples which he had collected at Fayetteville, Vermont, carefully selecting the largest and fairest of those he saw. They gave us a correct idea that an unfavorable climate for fruit, compared to Michigan, produced greater inferiority than neglected pruning and cultivation. The relative size of the apples were but one-half the size of our average; the Swaars and Jonathans, from their scaly appearance, could hardly be distinguished; the dull color of the Baldwins made them almost doubtful, while the Greenings and Roxbury Russets, though the fairest in external appearance, were very deficient in flavor. We were, however, well pleased with a new apple in the collection called the Murphy, similar in appearance and flavor to King of Tompkins County, but evidently a better keeper, which on that account must prove a valuable acquisition. The largest specimen measured ten and one-fourth inches in circumference, while the largest other apple, a Greening, measured eight inches. The Murphy grown here would undoubtedly measure over thirteen inches—by the way, an inch on an apple over twelve inches is a great deal. Unquestionably Michigan can beat the world on apples, as she does on peaches. All we lack in apple culture is the good pruning and cultivation we give our peaches.

Mr. Bixby stated that the best success he had in cultivation was with a plow, plowing deep early in the spring, and more shallow later in the season. Prune apples and pears in June, peaches at any time,—soil a sand and gravel loam.

Mr. Lathrop believes in thorough cultivation. Has tried seeding a portion of his peach orchard; found that the portion cultivated gained one year's growth in two. Uses a double shovel plow; plows in spring, and cultivates not later than August 15,—soil a sandy loam. Thinks pears and quinces cannot be too highly fertilized nor too thoroughly cultivated. Grapes are an exception. Prefers a poor soil and constant cultivation. Prunes peaches at any time, cutting back one-half of the new growth to increase the stockiness of the trees; prunes pears in the spring.

Mr. Voorhees said his experience in growing pears and quinces is not good, having manured too highly; soil a clay loam; would late fall plow to the trees, back plow in the spring, and cultivate once in two weeks.

Mr. Beers, from Indiana, has never known blight in wet seasons; thinks cultivation decreases the liability of blight; seeds apples once in three years. Thinks this the most favorable point he has seen for fruit.

Mr. Bailey has cultivated his pear orchard seventeen years and manures highly; has lost but one tree; grows corn one year and potatoes next; soil a sand and gravel loam.

Mr. D. B. Williams manured pears heavily; soil, gravel loam; was soft ground since.

Mr. Shoemaker asked if it would be advisable to prune now, leaving a stub and removing the stub in June. The President thought it would.

SOUTH HAVEN, April 15, 1873.

There was a large attendance this evening. There was quite a lively chat before the call to order, over the articles on the table, consisting of twigs injured by various insects, specimens of fresh fruit and evaporated fruit.

Judge Monroe had sent in several apples to be named.

Mr. H. E. Bidwell showed samples of evaporated fruits, oranges, lemons, tomatoes, and horse radish, beautifully dried by the Williams' process.

The subject for consideration was "insects." This subject having been talked over by the Society several times, most of those present were disposed to seek rather than give information.

Mr. A. J. Pierce stated that last year he had put blacksmith cinders close about the bodies of his peach trees, to keep out the borers. He had not examined them, but thought they would be quite effectual.

Mr. Foster said he put such cinders, with hard coal ashes, about some peach trees. He dug out the borers beforehand. He examined the trees for three years, while he owned them, and found none except such as got in before the cinders and ashes were applied, while in trees not so treated he found many borers. Some of his neighbors tried the same experiment, with similar success.

Mr. Irving Pierce said he had been troubled much by a reddish colored caterpillar, having bristles, which hatches from the leaves of his trees, and devoured them. Several others had noticed the same caterpillar.

Mr. Whitcher had noticed many cut-worms already about his peach trees.

Mr. Bidwell said these cut-worms could be caught under chips, the same as the curculio; so also could the little bug which was the parent of the little brown worm which eat into the buds of the peach and other trees. He showed several of these beetles, which were a little over an eighth of an inch long, glossy, light brown color, with spots of a lighter shade, and black heads. He hatched these from the worm.

There are bugs which prey upon other insects which hide under the chips. These should not be killed. This is one of the evils of catching bugs in bottles of sweetened water.

Two of the parasites are the Golden Carob, a very black, roundish bug, about three-eighths of an inch long, and a light colored bug, with brown dots and head resembling a lady-bug, but was not so round.

The best way to get rid of insects is to encourage birds, build houses for them, etc.

Those who follow up the destruction of the peach borer in their orchards find that after two or three years they are not troubled with them much. The same is the case with the codling moth, to some extent, and of many other insects. The females do not seem to go far from where they were developed to lay their eggs.

(Some one suggested that the potato bug was an exception.)

The larva of the codling moth miller often crawl under the rough bark of trees and winter. Now is the time to destroy them.

Question—What mischief does the snap-bug do?

Answer—Eat holes in the fruit.

Question—When is the best time to apply soap or alkali to the trees to kill insects?

Answer—Now, as there are many lice and other insects dormant in the bark.

Question—Is it a good plan to remove the gum from trees?

Answer—Should think so, after freezing is over.

Mr. J. Williams thought that, having considered insects several times, we ought to know considerable about them, and should now go to work diligently to make use of our knowledge. He would have this Society urge upon every man in this community, growing trees, to destroy these injurious insects; and if any did not know how, they could learn much by paying a dollar and joining this Society and attending its meetings. The insects demanding the strictest attention were the curculio, the codling moth, and the cut-worm. He thought the codling moth did as much or more damage than the curculio.

Mr. D. B. Williams told of the English Sparrow, how they had been introduced into the Elysian fields at Hoboken, N. J., how fast they multiplied, and how effectually they rid the country of insects. They eat fruit very little if any.

Mr. Whitcher said he had been informed by an Englishman that they were a pest in England, destroying the grain.

Mr. D. C. Loveday said they were exceedingly numerous in England, and would take the crumbs from the table-cloth before you could shake it, but he never observed that they did any damage to grain.

Mr. J. Lannin said he never noticed or heard of their doing any damage in Ireland.

Mr. A. J. Pierce moved that the Society send for some of them and take the risk.

The President stated that the Corresponding Secretary, Mr. Bidwell, had sent for some, which were probably on the way.

So, neighbors, look out for swarms of these clever little domestics in a few years.—[Lost on the Atlantic.]

The subject next week will be "planting trees."

SOUTH HAVEN, April 28, 1873.

The attendance was good, and the subject for the evening, "Fertilizers," was discussed with much interest.

Mr. A. J. Pierce sought information. He thought that while the country was new our orchards might thrive without much fertilizing, but that we will find in course of time, although good cultivation may help much, yet something must be given to the soil. The question was, what? Not barn-yard manure only. Where peat was plenty and close at hand, it was considered very valuable. Leaves and muck were excellent for a compost, but the supply was quite limited to most cultivators. Had no experience with patent manures.

The expense of barn-yard manure, where it must be purchased and hauled a mile or two, was such that it must give very luxuriant crops to prove profitable. Night-soil ought to be made accessible and utilized by deodorizing.

Where the soil varied on a piece of land, being sand or clay in patches, a few loads might be hauled from each to ameliorate the other.

A brush-cutting machine might be used for preparing brush to be applied to land, instead of burning it.

Mr. J. Williams remarked that many theories were not practicable. Most of our new soils did not actually need fertilizing, for fruit especially, if fruit was grown exclusively, and no other crops allowed to exhaust the land. He recom-

mended a continued succession of clover, stimulated by plaster and barn-yard manure for peach orchards, on sandy soil. On clay land simply clover was all that was necessary for apples. For grapes it was a very poor soil that needed fertilizing. The old plan of making deep rich borders affected badly the flavor of the grape, with those who regard fine quality. The purest fertilizers were the best. Clover well followed up was the best for fruit, and the most economical. He would sow in March, and plaster in June; especially sow plaster on clay in dry weather, as it needed more moisture when not cultivated than sand would. Sow no other crop with clover, nor raise any other in the orchard. Would plow under as soon as the clover got its full growth the next season. Then the next spring sow clover again and plaster.

Mr. H. E. Bidwell inquired if it would not injure the crop of an old peach orchard to leave it in clover a year or two.

Answer.—Not if followed up, as the trees would gain much vigor from the fertilizing and cultivating at intervals. The worms should be looked after, and a small space hoed about the base of the trees for this purpose.

Mr. E. M. Cook asked if it would not be uncertain about the clover catching if sowed alone?

Answer.—Not if well plastered.

Mr. Cook said he had been studying on this matter, and questioned whether an orchard would grow as well when kept in clover a part of the time, as when constantly cultivated. He had experienced much benefit to grapes by applying bones to the vines. For apple trees he would collect all kinds of litter. Chip manure was good, but there was one objection to it,—it harbored insects.

If clover would catch readily when sown alone, and would not injure the trees or crop of fruit, it would certainly be the thing. He would by all means harrow in clover, as he had no success when it was sown on snow.

Mr. Bidwell said he should think that buckwheat would be better than clover, as you would get three crops while you could get one of clover.

There is a great deal of our soil which does not need manuring for fruit. Sow buckwheat about the time you plant corn, and turn under just before it goes to seed. He hopes some will experiment with it, as we have much to learn.

Question.—Has it any fertilizing matter?

Mr. Bidwell said it had considerable nitrogen.

Mr. Loveday said it just occurred to him that fall rye would be an excellent fertilizer, as it would be fit to plow under the next season earlier than clover. Sow it when cultivating the orchard the last time.

Mr. D. Howard advocated fertilizing with clover. He had seen a farm which had been run down by successive cropping for thirty years, made rich again by one good crop of clover turned under. He had had much experience with clover. If barn-yard manure was given to him he would not haul it for it, because, admitting its good effects, he could put the same qualities in the soil by clover, with one-tenth the expense it would take to haul and spread the manure. He would sow about the middle of May, clean clover seed alone, plaster freely in June, and plow under the next June, when the clover would be knee high.

Mr. A. S. Dyckman asked would clover do well sowed alone in August?

Mr. Howard said there was no better time, about the 25th of August. It would be heavy enough to plow under by the 15th of June next. Clover always did best when sown alone. One crop at a time was always the best.

Mr. Voorhees asked if it would not winter kill?

Mr. Howard said it would not if not sowed later than August. Sow ten pounds to the acre if it is to be dressed with plenty of plaster; but if not, twelve pounds.

Mr. A. S. Dyckman said that new fresh soil, unless extremely poor or exhausted by other crops, did not need fertilizing for orchards. He believes it is very essential to cultivate, and don't know but a proper system of cultivation would be sufficient. He thought clover would be the cheapest fertilizer, but the question had been how to make clovering consistent with thorough cultivation. If it could, as Mr. Howard stated, be sown in August at the last time of cultivation, and be grown enough to plow under the next June, it would do. The trees and fruit would not suffer from drought until after June. Then if the orchard was cultivated until the last of August, its vigor would be maintained.

President Phillips inquired whether clover would be as good a fertilizer for fruit as for grain.

Mr. Dyckman said he didn't know, but should think so.

Mr. D. B. Williams said it was a lamentable fact, that so few cultivators understood the elementary principles of chemistry, and the qualities and needs of different soils.

In New Jersey they sowed buckwheat in their peach orchards during corn planting, and plowed it under in July, and sowed again to plow under in the fall; every other year.

It had a good effect on the soil, making it friable. The soil was a yellow sand on a yellow clay subsoil. He considered any crop among young trees a detriment. He suggested the utilizing the gleanings of the poultry house, and night soil, and the use of leaves, charcoal, and muck, for bedding in stables, and of a vat to collect the drainings of the barnyard. He recommended ashes, especially for fruit trees. Ashes should be applied with chip manure to kill insects.

Question.—Won't clover and chip manure harbor insects?

Mr. Howard said cut-worms don't work in clean clover. He never saw any in clover sod unless there was grass in it.

Mr. J. Lannin said he knew an Englishman who purchased a farm in Canada which had been depleted until it was seemingly worthless, by a shiftless family. He reclaimed it with clover, and got rich from it. He put in the clover with no other crop to shelter it. This sheltering clover was one of the old errors. We can raise clover any month of the summer, if it is dragged in well. He couldn't say from experience what fertilizer was best for fruit.

Mr. A. J. Pierce recommended making a sink a distance from the house, into which all the litter from the premises should be thrown, and the slops from the houses carried to it by a sewer.

Hon. W. H. Hurlbut judged from his experience that plowing buckwheat under, on very light sand, might make it too loose, so that it would not hold the trees firmly.

Clover makes light soil heavier, and heavy soil lighter.

Question for the next meeting, Grafting, budding, and propagating trees and plants. The Financial Secretary, Mr. H. E. Bidwell, announced one hundred and eight members.

SOUTH HAVEN, May 12, 1873.

There was the usual good attendance this evening.

How to propagate by budding and grafting, was considered.

Master Liberty Bailey stated what he considered to be important rules for grafting, viz.: never graft one limb directly over another. If the limb projects horizontally, do not make the split perpendicular, so as to have one come above the other—make smooth cuts and wax thoroughly.

Mr. A. S. Dyckman, in reply to a question, said he had experimented in grafting the wild cherry, but had not succeeded well in making them grow. He had one tree, however, from such a graft, which was five or six years old, of large size and doing well.

Question.—Is it necessary to bud in the new wood.

Answer.—Buds are usually put in the new wood, but sometimes do well in the old wood. Old trees may be cut back so that vigorous fresh shoots will grow out, into which insert the buds.

Mr. N. Phillips remarked that limbs an inch thick might be successfully budded.

Mr. Ingham, of Benton Harbor, said that attempts to graft peach trees had proved generally unsuccessful until it was found that by leaving a bit of the old wood on the cion, about have the length of the cut, they would grow very well. He had never seen any over two years old. He had doubted whether the union of the cion and stock would be perfect and lasting, but he saw nothing yet to indicate they would not be. Much depends on the wax.

He observed where the wax did not cover the cut, or cracked much, the grafts had not succeeded. It was advised to graft very early, but he grafted his after the buds had started into leaf, cutting the cions at the time, and had good success. The little black worm will eat the buds out of the cions if they are not protected. He protected his by tying gauze over them, but this would be tedious when grafting many.

Hon. W. H. Hurlbut thought that the little red robin cherry trees, the fruit of which grew on long stems in clusters, as the cultivated sorts do, would make the best stock to graft on. The stock which bore the little black cherry, which grew together on a stem like currants, was not good to graft on. It was a detriment to have too much grease in grafting wax, and what was used should be such as would dry hard, like linseed oil, as when the grease saturated the wood, or, drawn by the sun, separated and ran into the crevices, the cuts did not heal over well.

He would rather use clay than such wax. He had been very successful with grafts in small stock, wound with wax cloth. Never had any trouble making grafts live. As to time, he considered the later, to have a good flow of sap, the better. When done early the wood is apt to dry, and the grafts do not make as good a growth as when done later. Considered the latter part of May or the fore part of June the best time. They had done finely set in July.

Mr. A. J. Pierce suggested that perhaps the cherry would succeed best grafted with some of the old wood on the cion; it being similar to the peach.

Mr. Hurlbut inquired whether large pear trees did well when top grafted. Several replied that they had pear trees so grafted which were doing finely.

Mr. Ruggles, of Bloomingdale, stated that his peach trees, and nearly all he knew of in that section, were dead. In grafting apple trees, he found of some varieties, the wood black. The soil was a dry gravelly loam, and the location elevated.

In regard to bridging over bruises or blemishes on trees, Mr. Hurlbut said he had an apple tree girdled by the rabbits, two feet of the body being scraped clean to the wood, all around, and the wood partially dried. He wrapped a woolen rag, simply, about it and a new bark was formed all over the peeled portion.

Mr. A. E. Voorhees said he had a tree girdled near the ground. He hilled earth up around it and a new bark was formed.

Mr. A. S. Dyckman showed some peach branches from his orchard. Several varieties had a surplus on, and we took the trouble to measure two of these samples and count the buds. A branch of the Yellow Rareripe, about 14 inches long with laterals, measured altogether a length of 56 inches, and contained 100 live fruit buds.

Another of Keyport White measuring an aggregate of 30 inches, contained 48 live fruit buds.

Early Crawford twig 7 inches long, contained 10 live buds.

The subject for the next meeting is Insects and Birds—business to begin on time.

SOUTH HAVEN, May 24, 1873.

The subject for discussion this evening was "Insects and Birds."

Mr. Alfred Fitch stated that in examining his peach trees for grubs, he found, where he was thorough last year in destroying them, very few now; but where he hurried carelessly over them, there were many. He thought that if we would be very particular for a few years to hunt them up and destroy them we might nearly get rid of them. He found a great many cut-worms with black stripes along their sides, about his trees. He kills every insect he comes across.

Master Liberty Bailey said that a species of chick-a-deedee called the nathatch—a little larger than the wren, was the best bird to kill worms and insects from trees. Their nests are built hanging from the boughs. The swallow, martin, and kingbird live on insects caught in the air.

Mr. C. H. Wigglesworth observed this was not the bird usually known as the chick-a-deedee, which is a winter bird and lives on seeds. He also stated that he was not troubled with cut-worms.—Clay soil.—The small worms which some had found in such masses were not cut-worms, but a sort of earth maggot.

The question was asked if any one had applied any wash to their trees which kept off the worms.

Master Liberty Bailey said he had whitewashed a tree as an experiment and it had not been troubled.

Mr. T. L. Seaver inquired how to rid trees of the green aphid. He had an apple tree which was covered with them one year. He had dusted it with ashes, very thoroughly and repeatedly, but it did little good.

Mr. N. Phillips said that throwing dirt on them, would check them.

Mr. A. J. Pierce stated that he had rid trees of them entirely, by a thorough tobacco smoking.

Mr. A. S. Dyckman said that a heavy chalk mark around the body of a tree would prevent ants from climbing up and eating the fruit. It should be renewed every few days. He had chip traps set about his trees now, and was catching all kinds of bugs and worms except such as were known to destroy

other insects. He had the bugs and flies put in a vial, and worms in an oyster can, as they were caught.

Being asked in regard to the tin bands, he said he was satisfied the worms could not climb over the tin, as he had seen them trying in vain to crawl out of a tin can, but still something was eating his peach buds.

Information was asked in regard to a large whitish bug, almost an inch long, found much about grape vines. Several said it eat the buds of grape vines.

Master Liberty Bailey said a large bug like this, but brown, a species of May bug, eat grape buds.

There was little room for any more fruit buds in prime condition, on that branch from one of Mr. G. L. Seaver's trees.

Miscellaneous is the order for next meeting, with bugs and worms always in order at this season of the year.

SOUTH HAVEN June 2, 1873.

The President opened the meeting by remarking that there was no subject proposed for consideration, and as there was a number of peach trees dying from some cause, in the vicinity, it became us to inquire into the cause of the damage, and find a remedy if possible.

The undersigned stated that he had several Early Crawford and Old Mixon trees that were dying. They were thrifty five-year-old trees on a *rich sandy loam*, with clay subsoil; the site elevated, but the ground they stood on was just a little lower than that surrounding it, so as to take the drainage of it. The ground was very wet in spring and fall, and quite damp in dry weather. There was a row of Crawfords and a row of Old Mixons. There were underdrains at each end of the rows, and one crossed the rows about the center. The trees within a rod each side of these drains were not injured, while those intervening were seriously damaged. The trees blossomed and were setting peaches, and are nearly in full leaf; but examination shows the bark and wood to be dead for eighteen or twenty inches above ground. He judges from these facts that the injury originated at the roots and from the presence of too much water, perhaps by freezing.

Mr. Hunt showed two peach trees,—one year's growth on two years' roots, about seven feet high, and one and a half inch through at the base. One, a Stanley's late, grew on a rich clay loam, low ground; had leaved out but was dead at the roots. The trees, of which this was a sample, were highly cultivated, making this too rank growth. The other was a Barnard, grown on high sandy dry ground, which was manured richly, and made a rank forced growth. This was killed from the top down. He had three and four years old trees on the same kind of soil as both these, which were uninjured.

Mr. G. W. Griffin lost some trees where the earth was left away from the roots after grubbing, the ground froze and water gathered and froze about the bodies. Lost none worth mentioning otherwise.

Mr. D. C. Loveday lost fourteen trees out of one hundred and fifty, situated on high sandy dry ground. These damaged trees were all on a highly manured garden patch. The other trees on the same soil and elevation not injured. He concluded the dead trees made too heavy a growth. The question was raised whether there was not danger from too much exposure to winds on very high ground?

Mr. A. S. Dyckman said there was a gentleman at Strafford, Mich., who had a peach orchard on very high ground on which he had peaches every year, while in the country around they could not raise them. Also a gentleman at Bristol, Ind., had a peach orchard on an elevated site where he had regular crops.

The undersigned mentioned a location near Fort Recovery, Ohio, where peaches were raised on a very high mound or hill, while they could not raise them in the immediate vicinity of the general level.

Mr. J. Williams stated that he had lost several trees on high sandy ground, among which he had grown a crop of carrots. His theory was that most of the peach trees which were dying and which had started to grow, were killed by the cold, backward, spring. Long continued cold, damp weather with a few very warm days intervening, produced a poisonous fermentation. This was indicated by their dying from the roots up, and their sour offensive smell. Some on dry soil were probably injured last summer by the bark blight, caused by excessive heat and drouth. He had trees die in this way in the spring after a very mild winter.

Mr. B. F. Hunt stated that he found some of his trees to be injured before it was warm enough for them to ferment.

Mr. D. C. Loveday stated that Mr. Shoemaker had lost some trees among which he had raised a crop of potatoes, and digging them started a late growth in the trees.

Mr. H. E. Bidwell remarked in regard to the injured trees smelling sour, that trees dying slowly would have this smell.

Mr. C. H. Wigglesworth said he lost some trees where, after the ground was frozen the water gathered nearly a foot deep; also some on dry sandy ground, which were cultivated very late, and he laid the injury to that. He had trees right on the bank of the lake where the snow all blew off, and exposed to the strongest winds, set out last spring, which were uninjured. They were on clay subsoil.

Mr. D. B. Williams said he had trees one, two, and three years old, on low flat land which were not injured. He found very few curculios or cut-worms. Elevated ground was the place to set peach trees. In riding through the country in the morning and evening, a mist could be observed and a chill experienced in the hollows, while on the higher ground it was dry and warm. The injury from severe frosts could sometimes be noticed up to a certain line on trees, and above that no hurt.

Mr. A. J. Pierce said he did not find as many curculios or cut-worms as last year. He hilled up around the trees to keep out the borer, before fixing the curculio traps, flattening the hills for this purpose.

Mr. D. B. William said when the wind had blown his trees over crooked, he dug away on the windward side, and straightened them back, so replacing the roots in a proper position.

Mr. O. C. Lathrop had just returned from Northern Illinois. He reported apple and cherry trees looking well, and noticed from the cars some vineyards on hill-sides with southeast exposure that looked well. He was told by men living at Centralia that peaches and pears were all killed about there, and the peach trees killed and stubbed down. They would have no fruit but apples and strawberries,—blackberries and raspberries being killed. At Cobden they would have a few peaches of the hardiest varieties, but only a "drop in the bucket" to what they generally raised. He had fifty trees killed out of seven

hundred and fifty. He accounted for their death by the fact that when the very deep snow melted, before the ground was thawed enough to let the water through, it collected about the trees and froze solid. The fruit buds were green three weeks ago. Hereafter he would fix the surface of the ground so as to run the water off.

Mr. J. Pierce said he had found several limbs of his peach trees, from which he had cut samples of buds and showed to the Society a few weeks ago on account of their remarkable vigor, were now dying. What was the cause? [Might not the pruning when frozen have done the mischief?—SEC.] He finds few curculios.

Mr. A. S. Dyckman remarked that there seemed to be certain local causes which made peach trees subject to be killed by extreme cold, such as *a lack of vitality* from some cause, *a forced, extraordinary growth*, and *too much water about the roots*.

Mr. E. M. Cook said his observations sustained Mr. Dyckman's theory.

Mr. Dyckman stated that Prof. Cook was preparing a document on insects injurious to the strawberry, and desired any items we could furnish. Any one having observed the works of such insects will please report at next meeting.

H. E. Bidwell offered the following, which was adopted:

Resolved, That the South Haven Pomological Society adopt a full peck for a basket of peaches, and a full quart for a box of berries.

We trust that any of the distant readers of our reports who have not placed full confidence in the statements made therein in regard to our local advantages because they have been so uniformly flattering, will henceforth, after reading this report, give us credit for candor, seeing that unpleasant stubborn facts are squarely met and acknowledged. The dying of a number of trees in the vicinity, while it is a vexatious loss to individuals, is only a small fraction of all the trees unhurt and full of peaches. We think the cause is apparent in the clauses which we have underscored. The peach tree is sensitive, and will only thrive first-rate in dry warm soil that is yet moist. Experience shows that the following conditions will be fatal to them: Stagnant water about the roots only for a few days; extreme heat and drouth; *extreme freezing*; or *a less degree of freezing* after the trees have been stimulated to a *late growth* or forced to an *undue growth by excessive cultivation*; or on ground *highly manured*, or filled with *much decaying vegetable matter*; or where the *water will collect and freeze about the trees*; when the vitality is *diminished by borers, excessive bearing, entire neglect of cultivation*, or any cause; or where the trees have become so large as to completely shade the ground they may not mature so as to resist the extreme cold.

The above conditions avoided, we think a peach orchard in this vicinity is a good thing yet. It is noteworthy that trees winter-killed generally are killed outright, or partially, from the top down; while about all killed here this season die gradually after starting in the spring, and some after coming into nearly full leaf, and setting full of peaches, the bark of which was green a few days since clear down to the roots.

SOUTH HAVEN, June 28, 1873.

Insects injurious to strawberries, was the subject for consideration, and afterwards miscellaneous matters.

The Secretary had noticed holes eaten in the strawberry leaves, but could find no insect at work on them.

Mr. D. B. Williams spoke of a neighbor whose raspberry plants were eaten badly in the same way, by a small green worm. He fumigated them with brimstone and killed the plants. Mr. Williams stated that fumigating with brimstone was a risky, delicate operation, not safely performed but by experienced hands. It was safer, and effectual, to fumigate with Cayenne pepper and tobacco.

Inquiry was made how to hatch insect eggs.

Mr. Bidwell answered, put them in a jar and invert the jar, sinking the neck a little in the earth.

President N. Phillips stated that he had used wire screens, placed over the eggs on the ground. These were better than jars, admitting the air.

Mr. D. B. Williams said he had found but an average of one curculio to a tree under the chips in a day; and very few peaches were stung. Eight out of ten needed to be picked off from his trees. He said he had removed the earth from about his peach trees early in the spring to look for borers. Up to a few days since he found a borer at work occasionally, and hence concluded that it was not safe to give up the search for them and hill up the dirt until late in June.

Just before hilling up he would scrape the bark to kill any eggs which might be deposited by the miller.

Hon. Wm. H. Hurlbut believed in hilling up about peach trees to keep out the grubs, but it must be done just right to be perfectly successful. He would hill up in good season, and hill up so high that when the dirt is taken away in the fall it may be left so all winter, exposing the young grubs to freezing without endangering the trees by leaving the roots bare or a hollow about them for water to gather in. He would keep them hilled up through the summer about a foot high. The borers do not work lower than six inches. Last spring he only found ten or twelve grubs in five or six hundred trees. If, when the trees are hilled up, an old grub should be found in the tree, it will work up towards the top of the hill. The dirt should be hoed away leaving three or four inches of earth about the roots.

Mr. J. Williams said that one season he neglected to take the dirt away from his trees until November, so the bark did not have time to harden before freezing. Consequently he lost some trees by this tender bark freezing. He would remove the hills by the first of October.

Mr. Bidwell stated that the black worm, which bored into the ends of the twigs, laid its eggs in May, and these hatched out and produced a second crop.

Mr. Hurlbut referred to the insect that stung the new growth of apple trees, killing them like a blight. The worm could be found in the termination of last year's growth, in the pith, and a very small hole at the base of the new growth, where it came out.

Mr. Bonham, agent for Engle & Co., of Chicago, and the Chicago Journal, stated that in his travels he saw considerable of the depredations of this insect. It was more destructive in Southern Illinois than in Michigan.

Mr. Hurlbut supposed that the eggs were laid in the fall in the tips of the last growth.

Mr. Bonham stated that at Benton Harbor an insect resembling the rose bug was eating the peaches badly.

President Phillips said he had just received a letter from Missouri, stating that such an insect was destroying their raspberries and blackberries.

Mr. Bonham said the rust was spreading on the raspberry plantations of St. Joseph and Benton Harbor. They knew of no remedy but to exterminate the affected plants.

The Entomologist of the State and of this Society, Prof. Cook, expects to be here next week to make and classify for us a case of insects. Let every member of the Society be present with such insects as he may be able to capture.

SOUTH HAVEN, July 19, 1873.

The meetings have been interrupted for several weeks, and from this cause, the pressing work of the season, and the very short evenings, the numbers present indicated a stable interest in the Society.

Mr. H. E. Bidwell called attention to the fact that the time to catch the codling moth was nearly past for the first brood, which, if not caught, would destroy the balance of the crop. He says wrap a strip of cloth or paper of any kind, about four inches wide, around the body of the tree, four or five inches below the branches, and fasten by tying a string around at the middle of the strip, or by a small tack where the ends lap. Examine these bands once in ten days or three or four times during the season, and kill the moths. A man's time at such work in an apple or pear orchard would pay better than at any other work.

Mr. D. B. Williams suggested that copperas might be a remedy for the blight, it being an element of iron, and iron being healthful to pear trees and a successful invigorator to pear trees which were in a decline.

Mr. A. Fitch said he noticed blackened spots on several of his apple trees, with cracks around them, and in some of the cracks the chippings of worms. On examining he found flat-headed white grubs large and small.

Mr. Bidwell said that trees which were leaning over and unhealthy trees were most apt to be infested by the borer.

Mr. T. T. Lyon, a distinguished fruit-grower of this State, holds that a perfectly healthy tree is never occupied by a borer.

Mr. Bidwell said that a tree which was leaning should be straightened by undermining, if necessary.

SOUTH HAVEN, August 8, 1873.

The room was well filled at the last meeting. The Vice President, Mr. C. H. Wigglesworth, presided in absence of the President.

"How to exterminate the codling moth" was the question.

At the previous meeting Mr. Gregory, of Pine Grove, brought up the question, stating his experience, as did also several others who were not present at this meeting.

Mr. Gregory wrapped strips of cloth, a foot or more in width, around the bodies of the trees near the ground, tied with a string at the top and bottom. The strings being a little loose the moths crawled under them, and he caught many. He also found under the cloths many *curculio* similar to the plum *curculio*, but larger. Wondered why they were there, and wished others to make observations.

Mr. E. M. Potter said that the miller, which was transformed from the moth in the first apple, deposited eggs in the remaining apples. They should be caught by wrapping the bodies of the trees with bands of cloth or paper—cloth was the best,—and the bands removed and the moths caught once in a week or ten days.

Mr. A. Fitch put bands of cloth four inches wide just below the branches. He found the strings a bother, and used a tack where the ends of the bands lapped. He don't fail to find all by turning the cloth up and down without taking off the band. Thinks the bands ought to be examined as often as once a week, as in that time he finds the millers beginning to eat out of the cocoons, and if deferred longer some have gone. Found only one *curculio* on the apple trees.

Mr. D. B. Williams said he had less than two weeks' experience in catching the codling moth, and in that time had learned and accomplished a great deal. Found that paper or cotton cloth bands were not perfectly reliable. A thick woolen cloth was the thing, wrapped around the trees and the ends tucked under, fastening it quickly without string or tack. Next to woolen cloth a band of June grass was good, these being put in a pile and burned when taken off. In two or three days these would be fairly stuck to the bark by the web of the moths. He let chickens pick off the worms, but they would not touch the cocoons. He caught thirty or forty on a tree in three days after putting the bands on. He laid an old woolen glove in the crotch of a tree and found fifteen moths on it, besides several under scales of bark under it. Notices that where two apples touch each other a moth has entered.

Mr. H. Chatfield said two weeks ago he put bands about his trees, and to-day on examining them, found from ten to sixty on a tree, in all stages of development, from the worm to the empty cocoon. Some seemed to have gone down, and some up, from fallen apples on the ground. Think there were fully as many above as below the string. Where he found moths under the scales of the bark a web was attached to the cloth. Did not find many on bands of factory cloth, but most on dark thick woolen cloth.

Mr. A. S. Dyckman had caught a great many, both under paper bands and cloth. He put them on in June, but did not catch many until in July, and most of them recently. Looked for them once a week.

Mr. S. G. Antisdel, of Benton Harbor, said he saw a strip of paper which was taken the third time from a tree at that place in ten days, and it was completely covered with the web and cocoons of the moth.

Mr. D. T. Pierce said the red-headed woodpeckers were eating his apples.

Mr. A. J. Pierce put bands of cloth and paper around his trees two weeks ago. He don't find many, though the apples are wormy and falling off.

Mr. D. C. Loveday said paper bands he put around his trees were perforated with holes, as though peppered with shot, and under the paper, close to each hole, he found an empty cocoon. He supposed the millers had eaten out.

Mr. J. Williams said the only way to exterminate these moths was for every man to be interested in the work. It was of little use for a man to destroy them when his neighbor was propagating them. His observation convinced him that the best way was to trap them as we did the *curculio*, with the chip trap; then scrape the rough bark off and place bands just below the branches. They could not all be caught under the bands when there was grass and rubbish under the trees. He caught on one tree, in eleven days, seventy-two worms. It was necessary that we should co-operate to destroy them.

Mr. W. H. Hurlbut said he found a great many cocoons under the bands on his trees, and also many bright brown chrysalis. Were they different stages of the same insect?

Mr. H. H. Bidwell said the moth forms a chrysalis sometimes in a cocoon and sometimes without a cocoon, if it can find a snug retreat. He said he only found one codling moth on his pears. Accounts for this by the fact that he has plenty of birds about his orchard. Has six wren houses and two bluebird houses. He described the habits of the codling moth in answer to inquiry. The miller deposits the eggs in the blossom end of the young apple. In two or three days, according to the weather, they hatch out and enter the apple. When they get their growth they crawl out and let themselves down by a web, or crawl down, or fall prematurely with the apple. They crawl up or down for a hiding place, where they spin a cocoon about them. In a week or ten days they are transformed into a miller, which escapes and lays eggs in the remaining apples. It is one or two days before they mate, and one or two days before they lay the eggs.

Mr. W. H. Hurlbut said he had pear trees around and among his apple trees, and very few pears were attacked by the moths, while nearly all his apples were spoiled.

Mr. A. Voorhees said there were more worms in his Bartlett's than in any other variety, and in his Flemish Beauties very few.

Mr. H. Chatfield said he found canker-worms under the bands; also a green worm about an inch long in a cocoon.

Mr. A. J. Pierce stated that at Bear Lake he noticed the twigs of maple shade trees girdled by a very large white woolly caterpillar.

Mr. C. H. Wigglesworth said he found a small white woolly caterpillar on his apple trees.

The question for the next meeting is "The pear tree, its culture and enemies."

SOUTH HAVEN, August 11, 1873.

The subject for consideration was "The pear tree, its culture, diseases, and enemies."

Mr. Bidwell remarked that he had been informed that in Illinois and in some sections of the country where pear trees had been planted extensively, and which were considered well adapted to fruit-growing, pear trees had been killed or badly injured by the severity of the last winter, and that they were giving up pear culture as well as peach growing; therefore he hoped the culture of pears might be encouraged here. He thought that blight was caused by a lack of moisture in the soil, during a drouth and excessively hot weather, after a luxuriant growth in the early part of the season. The roots were not able to supply sap enough to keep up a free circulation. This was apt to be the case in very hard clay, which baked and became very dry in a drouth. Mr. J. Williams had expressed the opinion that cutting off the tap-roots when transplanting was a cause of blight. The roots did not then grow deep enough to draw a sufficient supply of moisture. Mr. Bidwell thought that cutting back the new growth in the spring, so as to increase the roots faster than the top, was a good plan. From the frequent occurrence of blight during a thunder-storm, some had concluded that a lack of moisture was not a cause of blight, but that there was a special demand on the vital forces of the tree before enough

rain had fallen to wet the roots. If a part of a tree became blighted it should be cut off immediately, as the blighted sap was conveyed from one part of the tree to the rest, and so the whole tree would become blighted. The pear tree blight differed in nature from the peach yellows, as it did not attack the fruit.

Mr. N. Phillips inquired, "How about the tree that is stunted after growing rapidly in the spring, and then blights?"

Mr. Bidwell said that which stunted the tree caused the blight.

The Secretary stated that he had over a hundred pear trees of four to six years growth, which were doing splendidly. He had lost only five or six dwarfs by the quince being exposed; had no blight. Some of the standards, and most of the dwarfs were loaded with fruit, and all had made a strong growth. The dwarfs had made a growth generally each year of many shoots of one to two feet long, and every spring he cut all of this back to two or three buds. He pruned the standards the same way, only not so closely. Some of the standards which had become large enough to bear a full crop, and which made a very vigorous growth last year, he did not cut back last spring as that would stimulate a thick growth of wood, but the last of July he thinned them out by clipping back the surplus inner shoots, leaving a few buds of the new wood, which he expected would develop fruit spurs. After any fruit tree has made a vigorous growth during a moist warm season, it is prudence to prune back considerable the next spring, lest the season be dry, and the roots be unable to supply the demand of moisture for so much wood. It is well to preserve the vigor of the tree and large sap vessels by giving the "*roots the balance of power.*" If the tree is so vigorous that it will not fruit, clip the new growth in July, according to the maturity, and the circulation will be checked, the sap thickened, and fruit buds developed. If increased growth of wood is wanted again, cultivate early and often, and prune in the spring heavily. His soil is clay loam.

Mr. Fitch showed a pear with black shrunken spots on it, inquiring the cause. It was said to be mildew, and that the older the trees get the more the fruit is subject to it.

Mr. A. Griffin said he had found by experience that if the blighted portion of the tree was cut off to where there were no more traces of the disease, that tree was no more likely to blight afterwards than others.

Mr. L. H. Bailey said he had a pear orchard in gravelly sand; had grown corn and potatoes in it alternately each year. Only had one tree blight before this year. It turned black from top to bottom almost instantly in a thunder storm. It was a Bartlett, full of pears. Mr. Fletcher had a Bartlett tree killed during the same shower. This year he had a Dearborn seedling tree blighted through most of the top. His son, Liberty, says he bored into it just below the blight and filled the hole with sulphur. The blight did not spread below, and strong shoots grew out at the base of every blighted limb as well as others. He cut the top off and the rest of the tree was still growing. Another tree, blighted down to the ground, was cut back to the ground and the roots threw up sprouts. He said the dust from the road killed the slugs from his trees.

Mr. D. B. Williams said he once had a row of vigorous dwarf Dutchess pear trees all blight in a day or two. They were on sandy soil. He thought copperas would be found a remedy for blight.

Mr. J. Lannin said that the first pear trees he set he put a bushel of manure in each hole dug for the tree. Most of them died, and the rest of them grew very little. Trees that he planted in their places the next year did well. From his experience in getting trees he had lost many got from a distance, and

would advise planters to get trees as near home as possible. He referred again to the fact that trees which he got from the nursery last fall, and heeled in on his place, some standing, were all growing finely.

The question was asked "Why not set in the fall?"

Mr. Lannin supposed they would have done as well.

Mr. D. B. Williams said plant anything in the fall but peach trees, if the ground is not too wet and a mound is drawn about the base.

Mr. Lannin said he was led to believe when the first got his farm that it was too clayey to be worth anything for fruit, and he tried to sell; but it happened well that he could not. He had no blight and very few slugs. Was going to persevere until he had a thriving pear orchard of five hundred trees.

Liberty Bailey said he found twenty-six moths in an old bird's nest. When a piece of carpet was wrapped about a tree he found all the moths in the folds of the ends tucked under without cocoons.

Mr. Bidwell showed beautiful samples of evaporated apples, peaches, strawberries, blackberries, red, black, and yellow raspberries, green corn and beans.

We have just received a copy of the London (England) *Grocer*, from the publisher, containing mention of the samples of fruit dried by the Williams process, on exhibition at Vienna.

SOUTH HAVEN, August 18, 1873.

Miscellaneous business was the order of the evening.

L. H. Bailey stated that he had just rid some young apple trees of green lice, by dusting the under side of the leaves and the lice with Paris Green, without injury to the trees.

Mr. D. B. Williams said he had put a spoonful of Paris Green in a pail of water, and syringed trees with it. It put an end to the lice, and did not injure the trees.

Mr. H. E. Bidwell said he had killed the green lice with carbolic acid water, a crystal about the size of a pea to a pint of water. The trees were not injured. He urged that the second brood of pear slugs should be destroyed now, by sprinkling any kind of dry dust on them. An orchard in this vicinity last year had trees in it which had the Yellows badly. By his advice, the trees were removed and others set in their places, which are growing finely, and there was now no trace of Yellows in the orchard.

There was a general and emphatic expression in favor of having a paid committee to look after the Yellows in this vicinity, and to see that the diseased trees were destroyed.

It was moved that Mr. H. E. Bidwell be appointed a committee to examine the orchards in this vicinity for the Yellows, and if any owner of diseased trees refused to destroy them, to report the case to this Society. The motion was carried with emphasis.

Mr. Bidwell remarked that the market for peaches was injured very much by diseased and hard green peaches being shipped. Hale's Early, especially, and most other varieties of peaches and fruits never became fit to eat when picked before ripe. Here we had quick water transportation, and a great advantage over localities away from the lake, and we ought to avail ourselves of it, by letting our fruit ripen before picking. It was larger, measured more, looked handsomer, and gave better satisfaction to the consumer.

The Society passed a vote recommending that fruit be not picked for market until suitably ripened.

G. L. Seaver and D. C. Loveday, of the executive committee, during the evening, waited on Capt. Costain, of the steamer *Ira Chaffee*, to see if arrangements could be made for reduced fare from Chicago during the meeting of the State Society. They reported that the Captain very cheerfully agreed to furnish passage at half fare to those attending the meeting for several days.

Collections of samples of perishable fruit now in season, and other business for the coming festival will be the order for next Monday evening.

SOUTH HAVEN, October 13, 1873.

The question for consideration was, how shall we prepare our trees for winter.

Mr. H. Linderman said he had thought of several plans. Of course, he would first examine the peach trees for borers, which should be done early in October. He would not bank up to the trees in the fall, as some had proposed, for he thought the earth would freeze to the bark, and the swaying of the trees by the wind would loosen the bark, and girdle them. He thought of plowing a shallow furrow towards the trees, four feet from the tree, each side, to carry off surface water, and to catch the snow. Also, he had thought of drawing mulch and spreading it about the trees, but not against them, to keep the sand from blowing away. He would look through the orchard after a hard wind, and when the swaying of the wind had made a crevice he would pack it down close to the tree.

Mr. D. Howard stated that one year he left the roots a little bare after grubbing his peach trees and they came through all right. The next year he did the same and killed his trees. One season he drew the dirt away in September and examined for the borers, then examined them again in October and drew the dirt back. The trees did first-rate the next season. He thought it was well to mulch with straw.

Mr. H. Linderman—Won't the mice burrow in the straw and gnaw the trees?

Mr. Howard—Not if there is no grain in it.

Mr. Linderman had seen trees in timothy sod, when the tall grass had settled about the trees, girdled by mice.

Mr. A. Fitch thought it was a good plan to bank up to peach trees after grubbing them in the fall, and would leave them so the next season, only the bank interfered with catching curculio in the spring with traps. (Flatten down the bank a little and lay the chips on it.)

Mr. L. H. Bailey said it had been stated that trees would not sway in the ground when the leaves were off. He had apple trees on a clay subsoil, which often twisted about badly during the winter, and he had to bind some of them to posts set deep, to keep them from blowing. He wished to speak of a discovery he had made in regard to the codling moth. He had recently placed some barrels on their sides near his apple trees, preparatory to gathering the fruit. A few days after, he found a great many moths on the underside of the barrel; as many as two hundred under some. There were a great many worms in the apples of the orchard north of his barn, which was seeded to clover, and had been pastured to hogs throughout the season, from the first. The orchard

by his house was sowed to oats, and had a number of bird houses in it, in which bluebirds, martins, and wrens had raised from two to three broods of young. In this orchard it was difficult to find a wormy apple, even among the Russets, which the moths have a special liking for. Did not pretend to say why. He was going to look after these pests thoroughly next year and now, by laying boards down to trap them. His Northern Spy apples were especially fair this year.

Mr. Pierce said he had seen peaches grown in Vermont by spreading coal dust on the snow or ground, at the base of the tree, and boards on the south side of the trees, after the ground was frozen, to keep the trees and ground from thawing until late in the spring.

Mr. H. Chatfield said it was very essential first to remove the water from around the roots, and also to mulch the ground after it was frozen, enough to keep it from thawing during the winter. Most of the peach trees he had lost had been rocked by the wind until crevices were made about the trees for water to stand in and freeze. He don't think banking up to the trees in the fall will hurt them.

Hon. Wm. H. Hurlbut agrees with Mr. Chatfield that the most essential thing to be done in preparing an orchard for winter was to drain the water well from the roots.

He had some trees that were always blowing about, until he got the stumps out so he could make a deep dead furrow between the rows, and until he kept the ground plowed to the trees so as to run the water from them. Now they don't blow over and are thrifty. If the water stands about the roots, the trees sway and make a porridge. Deep plowing in the latter of the season was injurious. He would not plow or cultivate later than July, for the benefit of the trees. The bigger crop of weeds that can be got after that, the better. They check the growth in time to ripen the wood, and hold the snow during the winter, and go back to the ground to mulch and fertilize it. He thought it was well to throw branches around the trees in the fall, to hold snow. He left branches which he pruned off in July on the ground for this purpose. All this looked slovenly, but he believed it paid. He grubbed his trees twice a year for economy's sake, as it took less time than to be very careful to catch all the grubs at one time. He had just had two men hoe the dirt away from his trees preparatory to looking for the grubs. They had prepared 700 trees in three hours. This ought to have been done before. He would leave them five days, then examine them. Many of the very small ones would have dried with the bark and perished. The rest he would kill, and then draw the dirt back just enough to cover the yellow bark, or that which had the cluster of roots. In the spring he would grub the trees again and bank up to them. He never had mice injure a peach tree.

Mr. Howard said he had seen them girdled by deer mice.

Question.—Would you trim trees now?

Answer.—No. The cuts will not heal over, and the wood will crack.

Mr. Bailey said he had had much experience, and had killed trees outright by pruning them in September. Never prune a tree in the fall.

Mr. A. S. Dyckman approved of hilling up to the trees in the fall, and when most exposed, of placing something to catch and hold the snow.

The codling moth will be looked after at the next meeting.

SOUTH HAVEN, November 17, 1873.

The subject for consideration was "Fall planting of trees and the depth to plant."

Hon. W. H. Hurlbut stated that he knew from experience that apple trees did well set in the fall, and in theory he knew no reason why, if peach trees must be taken up in the fall, they would not winter as well set in the orchard as when heeled in, provided the soil was free from water. When trees are taken from the nursery many of the fibrous roots are broken off, and others are withered by exposure to the sun and wind. If set in the fall new roots are started at once. He would set trees a little deeper than they were in the nursery. If set very deep the old roots made little growth, and roots must form near the surface, in the warm soil, before it could grow much.

Mr. D. B. Williams don't believe in setting peach trees in the fall, the roots winter-kill. He would set trees about an inch deeper than they stood in the nursery. Clay should be well drained. He would hill up to the trees about 15 inches to protect the roots and stay the tree. He has set peach trees in the fall several times; sometimes they did well, but generally he lost a good proportion of them. Apples, pears, and grapes do best set in the fall, after the frost has killed the leaves. The air is cool, and the ground warm, which is a favorable condition for the formation of roots.

Mr. L. H. Bailey sees no reason why, if the trees are taken up in the fall, as they are very generally in nurseries, they would not do as well set in the orchard as heeled in. Knows apples and pears will do well set in the fall from experience. Has a bearing orchard which was set in a January thaw, the trees of which all did first rate. He would set a very little deeper than the trees stood in the nursery.

Mr. Gilbert thinks the roots start to grow first. Any season in which the trees will take root best, is the best time to plant.

Mr. H. Chatfield plants just deep enough to cover the roots well.

Mr. Morse had seen many trees planted in the fall which did well. If the ground is well drained he don't see why peach trees will not do well planted in the fall. He would draw a hill up around all trees set in the fall. The ground should always be well drained.

Mr. H. E. Voorhees has had no experience in fall setting. He noticed in his reading that good authority was divided. If circumstances are favorable and the ground dry, he thinks it is best generally to set in the fall.

Mr. T. T. Lyon said there were many advantages as well as some disadvantages in setting trees in the fall. One great reason was, that in most places there were great risks of trees being injured by freezing in the nursery, and this could not sometimes be detected until growth was far advanced the next season, hence it was safer to get trees in the fall. Then it was a great convenience to get trees in the fall so as to have them at hand to set at the first favorable opportunity in the spring. If trees were taken up in the fall and the roots covered, granulations would be formed on the roots, and sometimes small roots emitted. If then the trees were set where they were to remain, this growth was to much advantage. Also the earth would become settled about the roots by the rain and the frost, and the trees be in much better condition to grow than if planted in the spring. On the contrary, it may be considered that a tree just taken up and set is in a weak condition, and more liable to receive injury. It is also a query whether the fresh granulation and roots may not be injured by severe freezing. There is no doubt but that it is fatal to a tree to

set it on wet ground in the fall. There is much less danger from frost after fall setting here, than in most localities.

As to peach trees, there is much risk in fall setting. If the bodies are covered with soil they are perfectly safe from freezing. Trees in the nursery are shaded and not as hardy as those exposed in the orchard. If trees are set in the fall, they should be set as early as the wood is matured, and in the spring, as early as the ground will do to work. It will do to set trees much deeper in light dry deep soils, than in thin or heavy soil. The ground should be thoroughly underdrained, and if the soil is heavy, even then it is better to set shallow and work the soil up to them.

Mr. Hurlbut—If access can be had to a nursery near at hand, where the trees can be safely left over winter, would it not be best to leave peach trees in the nursery until spring?

Mr. Lyon—Yes; but such is not generally the case.

Mr. L. H. Bailey exhibited an exceedingly beautiful red apple on yellow ground, for a name: not named yet.

Mr. A. J. Pierce passed around a basket of apples, a small yellowish russet splashed apple, a little oblong, crisp, very tender, sub acid, almost sweet, and decidedly rich and delicious. Also some Fallwaters uncommonly rich colored and high flavored for this variety. They are said to keep reasonably well until May. Mr. Pierce gives the origin of this name as follows: The tree standing near a body of water, a little child just beginning to talk being near by while the apples were being gathered, and seeing some of the apples fall into the water, cried out "Fallwater! Fallwater!" from which circumstance the apples were named Fallwater.

The President, N. Phillips, exhibited samples of Pomme Gris, pronounced genuine.

Mr. Hurlbut raised the question as to whether the peach trees killed here were killed by the severe cold, declaring his opinion from all he had learned and observed of such trees, that certain unhealthy conditions of the trees and unfavorable circumstances in which they went into the winter, by neglect, were the original causes. Being allowed but a column in the Sentinel, and these reasons having been several times stated in these reports, we can only give briefs of Mr. Lyon's observations and suggestions—that trees being killed here on high sandy land where the snow was blown off, and on low clay and loam, and at Grand Traverse, where the snow drifted about them five feet deep and the ground was not frozen, all in the same way, being killed at the roots first, it was difficult to judge what killed the trees. Much depended on the condition of the trees, their maturity when freezing commenced, their health and vigor. It was a query whether the severe drouth did not weaken the trees.

The question for the next meeting is seeding orchards.

SOUTH HAVEN, NOV. 24, 1873.

The Secretary being absent the Corresponding Secretary was chosen to write the report of the evening.

The question was on seeding orchards.

Hon. W. H. Hurlbut said, being a poor hand at cultivating, he had a good deal of experience at seeding to grass. A part of his Bangor apple orchard had been in grass twenty years. The balance was cultivated, cropped, and

seeded, then cultivated cropped and seeded again—making several rotations in the twenty years. The trees in the seeded part done the poorest a few years, but since have improved until they are now as good as the others. Soil, sand, gravel, and clay loam, mixed. His apple orchard here has been tilled three or four years and then seeded. He thinks this is the most profitable way. Standard pears have also done well in the adjoining land, but peaches with this course have “played out.” Apples in another orchard here have been a portion cultivated, and a part in grass, and are about the same—could see no difference.

Mr. Dyckman asked if they were not more affected in the grass by the drouth.

Mr. Hurlbut said that while young they were. In cultivated ground he has cropped.

Mr. A. S. Dyckman stated that he had no experience in seeding orchards. Was opposed to it in theory and practice. Thinks apples and pears when young, say for ten years, need cultivation.

Peaches he is sure should be cultivated. Knows it is a great benefit in drouth.

Mr. Windoes remarked he had little experience in seeding orchards. After cultivating four or five years he had seeded to clover. On the following spring he had the clover under the trees as far out as the ends of the limbs turned under with a potato digger, and in June had a swathe cut around each tree and thrown on the ground under the trees. He thought it a great benefit. Apple orchards in New York State were seeded and occasionally plowed under, and considered a success when they were not cropped.

Mr. Morse believed in generous cultivation. Thought orchards should never be neglected to show stunt. More orchards were damaged by seeding than otherwise. If seeded, the trees should be mulched. Trees should make a good annual growth, at least a foot.

Mr. Hurlbut remarked that where the soil was wet it should be cultivated. His was dry.

Mr. Monroe said it was customary to seed orchards after eight or ten years. If left in grass, he thought the trees should be mulched.

The Secretary said he believed in deep cultivation before setting, and during the entire growth of the orchard; the deeper and oftener the better, as growth begins in the spring, until the first of September, leaving only time in the fall to ripen the wood and buds. Thought the older the trees became the more they needed cultivation, pruning and manuring. Had more faith in either of these than in grass. The object of deep and constant cultivation was to induce the roots to go deep so as not to be affected by the extremes of temperature. Seeding induced surface rooting, which was easily influenced by the heat and drouth, especially at the south, and by wet and cold at the north, so as to cause early maturity and decay.

Mr. Nagle exhibited fine specimens of green Newtown Pippins, and the President handsome Baldwins; the Secretary, Croton, Eumelan, Diana, and Iona grapes.

Mr. Hurlbut proposed for the next meeting, “What is the proper light to start the heads of trees?”

SOUTH HAVEN, Dec. 1, 1873.

Question for discussion, How high to start the heads of fruit trees?

Mr. Windoes would not prune peach trees to open heads, but trim up a center stock, with branches extending from it shortened in, forming a pyramidal tree. Would start the head about two and a half feet high. He once raised a peach orchard by planting the pits where he wished the trees to stand, budded them the first year, and pruned as above stated. These trees were large, thrifter, and bore more at four years old, than others budded in the nursery, and trees planted at six years old. He had a large orchard, with open, spreading heads, many of which were broken down by ice. He had visited the Parish orchard in Barry county, the trees of which were started from one and a half to two feet high, and the tops formed like an inverted umbrella, open and spreading, and when he saw them the limbs were lying on the ground. There were no side-shoots on the main branches for some distance from the main body of the tree. From his own experience he concludes that the tops of apple trees should be started from three to three and a half feet high.

Mr. L. H. Bailey wouldn't have a limb of an apple tree started less than six feet high. When they are a dozen years old or more, and full of apples, the limbs will then touch the ground. His reasons are convenience of cultivating and gathering the fruit, and because he claims the wind does not whip off the fruit as badly as from low stocky trees, and because he has observed that the apples in the tops of the trees were the finest, and not damaged so much by the moths.

Hon. W. H. Hurlbut agreed with Mr. Bailey. He thought that any one who had to cultivate an orchard twenty-five years old and gather the fruit, would not think the lower limbs were too high if they were six or seven feet from the ground. Apple trees were just in their prime at twenty years old, if they had been properly cared for, and should be planted and trained with reference to long life. Peach trees were different, being past their best, generally, in twelve or fifteen years, and should be managed with reference to quick returns. He would start peach trees low. He had in one orchard, about ten years old, twenty Baldwins, the lowest limbs of which were six feet from the ground. The fruit bore them down so that he could pick two-thirds of the apples standing on the ground. He did not see there was any difference between the high and low-headed trees as to the amount of fruit they bore. He did not think the fruit was blown from off low-headed trees any more than high-topped ones, provided the trees in an orchard were uniform, as they broke the wind from one another. But if any tree tops were much lower or higher than the general level of the tops they would catch the currents and suffer. He did not think the apples in the tops of low trees were damaged by insects more than those in the tops of high ones, as they begin to work at the bottom, and the heat and wind in the top prevents them.

Mr. D. C. Loveday agreed with Mr. Bailey in regard to apple trees, and with Mr. Windoes in regard to peach trees.

Mr. B. B. Williams said that the side-limbs of a peach tree a year from bud were immature, and therefore at transplanting he would cut them all off and cut back the top a little, then form the top from the buds; or if he wished to preserve a center leader, would form that from the strongest bud near the top. He would not start the top of a peach tree lower than two feet. Would start apple trees about three feet high and keep them tending up by pruning from the under side.

Mr. A. J. Pierce had little experience, but in theory judged that to facilitate cultivation and the fighting of insects, it was very desirable to have the tops up out of the way, five or six feet from the ground. The fruit will bring the tops down.

Mr. Windoes told of an orchard he had seen which was started with forked limbs and spreading heads. The fruit bore down the limbs so that the owner grafted suckers across from one limb to another. These grew to be quite large and supported the forks.

Mr. Hurlbut had seed trees fixed so.

Mr. A. J. Pierce, also.

Mr. Bailey had trees supported so, only by twigs tied across when small.

Mr. J. Bridges, of Arlington, said he received a lot of trees from Rochester which were headed back to within a foot of the roots, and so several upright branches started from the stump. These were left to grow out to form the top of the tree. When they came to full bearing they bent outwards, and so low that it was impossible to cultivate them well, and the fruit on the low limbs was so shaded that it was almost worthless. He had an orchard of six hundred trees set two years ago last spring, twenty feet apart, with tops four feet high, bodies from three to five inches in diameter. These he thought about right. It was difficult to get apple trees up high enough. The tops should be started six feet, or at least five feet high.

The Secretary has noticed that trees with rather low heads are the most stocky and vigorous and free from borers in the body. Trees six or seven feet to the top often get carried over by the wind so that the southwest side of the long trunk is exposed to the vertical rays of the sun, to extremes of heat or cold, and suffer. Then he decidedly likes the looks of an orchard of rather low stock trees, or those of medium height. He would have tops of peach, pear, plum, and cherry started from two and a half to three feet from ground, and apples from three to four feet, according to the upright or spreading habit of the tree. Then starting the main branches almost perpendicular and allowing no side limbs to grow to much size, lower than five or six feet, and headed back if necessary to make them stocky, pruning constantly from under side.

Mr. Bailey incidentally gives a receipt for killing bark lice, which he had found always effectual. Equal parts of soft soap and lime with lye enough to make it pliable, applied all over the trees to the tips of the branches.

Mr. Windoes gave one which he used with success. A gallon of soft soap to a pail of water. Wash the trees thoroughly twice during the summer. Began when the trees were young, and at ten years old the trees had no lice nor rough bark.

Mr. Hurlbut had cleansed trees of lice which were well established, by applying equal parts of soap and ash water with a little lime.

SOUTH HAVEN, Dec. 15, 1873.

The President being absent, Vice President Wigglesworth occupied the chair.

The question for consideration was, "How to preserve fruit fresh in its natural state."

Mr. Bidwell's method is to pick the fruit, as soon as it is developed, carefully, without bruising, and place in baskets or on shelves in a cool place. If kept

cool it is not essential to have them in a dry place, although, if too warm, moisture hastens decay. Next to fresh fruit, that evaporated by the Williams and Alden processes is best. It is superior in flavor to canned fruit, and will keep a long time.

The Vice President asked if grapes could be injured by bruising, so as to cause decay, if the skin is not broken.

Mr. Bidwell is satisfied they can be, and require as much care in this respect as any other fruit.

Mr. J. E. Windoes could not succeed in satisfactorily keeping and ripening the Winter Nellis until he closed them up in half-barrels, put them in a cool cellar and left them undisturbed until June, when he brought them into a warm room, and in a few days they were as melting and delicious as Seckel. Had known of the Lady apple—which was otherwise dry and very poor—being kept in this way until the first of February, and then sold in New York city for \$15 per barrel. Fruit should be kept as cool as possible, without freezing, until full time for ripening, and then brought into a warm room to ripen.

Mr. A. Voorhees suggested the inquiry whether fruit would keep and develop best in the light or dark. His experience was decidedly in favor of no light.

Mr. Windoes confirmed this by instances of his experience.

Mr. Bailey's experience was the same. A deep, cool, dark cellar of even temperature was the place. Could keep fruit the longest wrapped in paper and placed in stone jars. Kept apples until June every year that way. Baldwins and Greenings would keep better than others, after being bruised, as the bruise would dry. Northern Spy would not keep after being bruised.

Mr. C. J. Monroe stated that his father had kept apples very successfully placed on shelves of slats in the cellar—which was very cool and of even temperature—also had kept them until June, by picking them very carefully, putting them at once into barrels, these in a hole two and a half feet deep, covered by a roof of boards and earth, both ends being left open until freezing weather, when they were closed up and protected with straw. They were not disturbed until late in the spring, when they were very sound, fresh, and crisp, but they rotted badly in a week or ten days after opening.

Mr. Loveday's experience with buried apples was similar to Mr. Monroe's.

Mr. W. H. Hurlbut observed that light was favorable to fruit while growing, but detrimental after it was picked. Fruit was generally left on the tree too long to keep well. The objection to a circulation of air was that it was not uniform. If cool enough, dampness did not injure. Leaves placed among the fruit were successful as an absorbent of the sweat. Apples would keep best picked carefully into barrels and placed in a deep, cool, dark cellar without circulation of air.

Mr. J. Williams said a healthy, perfect growth is essential. Place as soon as picked, in barrels lined with heavy paper; leave undisturbed until you wish to ship or use, then sort and repack. The least exposure to light and air the better. The best way of preserving perishable fruit was by the evaporating process of Alden, Smith, or Williams. Sauce from fruit so preserved was so nearly like that from fresh fruit the difference could hardly be noticed.

Mr. Windoes stated that apples were often kept through the winter, frozen solid in the barrel, allowed to thaw out before disturbing, and were as though never frozen, but they would not keep long after being thawed out.

Messrs. Monroe, Voorhees, and D. B. Williams had known them to be so kept successfully. Mr. Hurlbut had lost two lots in that way.

Mr. D. B. Williams said pears should be picked before fully ripe and placed between blankets. Had kept Virgalien until December, in this way, when they were delicious. Grapes would keep well in kiln-dried hard-maple sawdust. The best way to preserve fruit was the Williams' process.

Mr. J. Williams exhibited samples of apples, fish, and pumpkin evaporated by the Williams' process. The apples were all that could be desired; the fish looked well, and Mr. Williams says they are little inferior to fresh fish. But the climax of Yankee invention for Yankee palates, was the pumpkin meal, ground from evaporated pumpkin, for pies. It might be made an article of considerable commercial value.

Mr. Bidwell loaded the table with apples and grapes in variety. The grapes were mostly all well kept, and best preserved in order as follows: Diana, Iona, Croton, Martha, Eumelan, Walter, and Delaware,—the first two as plump as when picked. The Iona the most refreshing, decidedly. We had a good chance to test the quality, for Mr. Bidwell said they must all be eaten, and, do our best, we had to leave some.

Mr. Voorhees brought some well ripened and colored Vicar pears which went the way of the grapes.

SOUTH HAVEN, Dec. 22, 1873.

There having been no questions for discussion proposed at the previous meeting, "Pruning Grapes" was selected as the topic for the evening.

The discussion became quite animated, but it is proposed to report only a brief of the most important points brought out.

Mr. Bidwell believes in, and practices, cutting back the old wood—the bearing wood of the past season—each year, to a crown near the ground, leaving the two strongest canes of the last season's growth, which start directly from the roots or from the ground, to bear the present season. These are also cut back to three feet or more, according to the vigor of the vine, and tied to stakes. Concord and like strong-growing varieties he plants ten feet apart, and Delaware and its class, five to six feet by ten. He thinks the nearer the fruit is to the roots, and the less old wood the sap has to pass through, the better the fruit is and the earlier it ripens. He does not summer prune nor generally thin out the fruit, which grows to a good size and about all ripens up well. His vineyard is five years old, and continues vigorous and very productive.

Mr. W. H. Hurlbut claims the peculiarity of pruning in the spring when the sap flows, and is satisfied with the results.

Mr. Bidwell and others think there must certainly be a waste of sap—a clear loss to the vine.

Mr. T. T. Lyon prefers a trellis for a family garden, though it may not be the most profitable for a large vineyard. Grows a pair of arms running in opposite directions horizontally from the one main stock, along the lower slat or wire. These arms are permanent, and from each joint of them one or two canes are allowed to grow each year, to bear fruit the next year, being cut away after fruiting, to give place for the new growth the next season. The bearing canes are cut down to three joints, and the arms commenced with one or two joints, and lengthened a joint or two each year. It is very easy to lay these arms on the ground in the fall, and cover them with a little earth for winter protection,

which he thinks would be beneficial even here. He thinks the process of cutting away all the old wood, or the whole vine, down to near the ground each year, allowing no increase except what the roots push out directly each season, checks the healthy development of the roots and causes rot and mildew, and questions whether as much fruit can be got by this method as by a constant increase in the stock of the vine. He recommends constant summer pruning, sufficient to remove an excessive setting of fruit, but not to remove leaves to let in the sun. The Delaware has a peculiar habit of throwing out a strong growth from the base of the stock, which adapts it to the system practiced by Mr. Bidwell, as does also the Croton. There is as much necessity for removing an excessive set of grapes as of peaches or apples.

Mr. G. L. Seaver last year left several Delaware vines unpruned. They were overloaded with fruit which failed to ripen, and was very small, so it was not worth picking, while other vines of same variety and age which had been pruned, bore a good crop of fine well-matured fruit.

Mr. J. E. Windoes explained the system now practiced generally on the Lake Erie Islands, viz.: Trellis of three wires. The bearing wood cut back each year to a crown near the ground, and three canes allowed to grow to replace them. The bearing canes, having been shortened somewhat, were tied to the trellis, two being tied to the top wire, and then bent outwards and tied down to the second wire, and the third tied upright between these.

Some of the foregoing points were brought out and a spirited discussion excited by Dr. L. C. Woodman, who, without any pretension to experience in grape culture, on what he had observed of vegetation generally, and on general principles, questioned whether the vine was not stunted and enfeebled by the close pruning of Mr. Bidwell and others. As will be seen above, Mr. Lyon advocated gradual extension. So did the undersigned. Mr. Bidwell claimed that the grape vine differed from trees generally, and had power to force a new growth yearly, to balance the root, and that he left the new canes longer each year.

Mr. Hurlbut said we must not hasten conclusions, as the same rules did not apply to all kinds of vegetation, and cited plantations of chestnut and hickory, which were constantly, at intervals, cut down for posts and poles, and continued to increase in vigor and bore nuts or young sprouts.

The Secretary suggested rhubarb, asparagus, *Canada thistles*, etc.

The President, Mr. N. Phillips, called attention to the fact that grape cuttings were in demand from this section on account of their being well ripened.

The next meeting being the annual meeting for the election of officers and the transaction of other business, it was decided to have a public gathering at Dyckman Hall. Addresses, and music, and fruit, and perhaps other refreshments, may be expected. Monday evening, December 29th. The public generally and ladies especially are invited.

SOUTH HAVEN, Dec. 29, 1873.

The annual meeting was held at Dyckman Hall, Monday evening, December 29th. There were more in attendance than could be reasonably expected on such a very cold stormy evening.

Large tables were filled with beautiful fruits.

L. H. Bailey contributed twenty-two varieties of apples; H. E. Bidwell, about

a bushel of Diana, Eumelan, Croton, Martha, Iona, and Delaware grapes, and some Vicar pears. N. Phillips, a variety of richly colored apples; D. C. Love-day a fine lot of apples and Vicar pears; A. Voorhees, a quantity of nice Vicar pears. Also, other lots. Contributors unknown.

After calling to order, the President, N. Phillips, delivered a valedictory address which was received with applause.

A. J. Pierce read an essay on Home Adornments which, expressed a commendable and enthusiastic appreciation of rustic and horticultural adornments, and of clean and unobstructed streets and gateways. Received with applause.

C. J. Monroe read a paper on "Our Locality" in characteristically unassuming style, which is especially worthy of attention, from the fact of his long residence here, and his intimate acquaintance with the county.

The Society voted that C. J. Monroe, and N. Phillips be requested to furnish their papers to the editor of the South Haven Sentinel for publication if he please.

W. H. Gregory, a scientific and thorough fruit-grower of Pine Grove, by request of the President, made some remarks on cultivation.

He stated several convincing illustrations in his experience and observations that much is lost by trying to get too much at once from a piece of ground, one crop being made to rob another so that both are failures. His doctrine is that thorough, constant cultivation, labor, and eternal vigilance are the essentials to success in fruit growing.

O. C. Lathrop, by request, made a short speech, enthusiastically extolling our favored locality and the achievements of this Society. Most of it seems to agree with our stomachs, but would probably be strong meat for foreigners.

The Society then proceeded to the election of officers.

The following were elected without a dissenting vote:

President—Norman Phillips.

Vice President—J. E. Windoes.

Recording Secretary—C. T. Bryant.

Corresponding Secretary—H. E. Bidwell.

Treasurer—C. J. Monroe.

Librarian—D. B. Williams.

Executive Committee—G. L. Seaver, O. C. Lathrop, D. E. Histed, Wm. H. Hurlbut, B. F. Hunt.

H. E. Bidwell moved that Prof. Cook, of the State Agricultural College, and State Entomologist, be invited to act as Entomologist of this Society. An amendment was offered that H. E. Bidwell be chosen as his assistant.

H. E. Bidwell's motion was carried with amendment.

H. E. Bidwell nominated Master Liberty Bailey as Ornithologist of this Society. The motion was heartily supported and he was unanimously elected.

Mr. H. E. Bidwell then presented Liberty Bailey, as Ornithologist of this Society, with a cage of three European sparrows just imported by him from England.

Mr. H. E. Bidwell moved that \$50 be appropriated from the funds of the Society for a case in which to preserve insects injurious to fruit and their parasites, and a case in which to preserve insects, worms, and fruit-destroying birds, Prof. Cook having offered to help fill and classify them. After some deliberation the motion prevailed.

Hon. W. H. Hurlbut suggested that a collection be made of birds which destroy the nests of useful birds.

A vote of hearty thanks was tendered to Mr. A. S. Dyckman for the use of his hall.

During the balloting the table of fruit was disposed of in a very natural way.

Owing to the lateness of the hour, some business was left until next week.

The Secretary accepted the office on condition that he be not expected to furnish the full detailed reports he has been accustomed to for publication. So, modest ones, come and talk, and all come and hear for yourselves.

There were no important discussions during peach harvest. Perhaps this last report is too much of a local character to go in in full.

Yours, very respectfully,

C. T. BRYANT.

HISTORY OF FRUIT CULTURE IN KALAMAZOO COUNTY.

[This essay, prepared by Moses Kingsley, Esq., was read by James H. Stone, in the absence of its author, at the Kalamazoo meeting, June 26, 1873.]

GENTLEMEN:—Pressed into a service for which he feels utterly incompetent, and not only so, but a service to be rendered in the presence of superiors in practical experience and knowledge of the subject to be treated, and of superior talent and ability, the writer approaches his work with many misgivings, supported only by an enthusiasm which dates back to earlier years, and an observation co-extensive with our State governmental existence, and to a time when a bearing orchard was unknown in the county of Kalamazoo. The writer only gives facts from memory, and from careful observation of the progress that has been made to the present date, and which finds its culmination in the interesting exhibition before us, and the enthusiasm developed by the members of this Society on the present occasion.

THE FRUIT BELT.

It is but a few years since the discovery was made that Michigan had what is technically called the "Fruit Belt" while the term, as now used, seems as a household word, familiar as the names of our States, and as geographically located. Its limits inland are not so clearly defined perhaps, for the reason that those who originally adopted the name claim a monopoly of its use, and limit it to a narrow strip of the eastern shore of Lake Michigan, where they first successfully experimented in the cultivation of the tender fruits, which farther inland soil or climate failed of uniform fruitage. Be that as it may, Kalamazoo county has, with very limited interruption, since the first cultivated fruit was planted, been a successful fruit region, and claims to-day to belong to the "Fruit Belt," notwithstanding the present appearance of our peach orchards, a visitation which our more fortunate neighbors have not entirely escaped.

THE FIRST ORCHARDS.

The early settlers will remember the spontaneous growth and profusion of wild fruits that satisfied their necessities while waiting for the tardy growth of better substitutes. The wild plum, blackberry, raspberry, gooseberry, and in some localities the cranberry were indigenous to our soil and climate. A few bearing apple trees were found by the first settlers on Grand Prairie, on the farm originally purchased by Seth Taft, supposed to have originated from seed accidentally dropped by French traders, on the spot which the early maps of Michigan Territory designated as an Indian village. The earliest efforts at fruit-growing that we have any knowledge of in this county were by Enoch Harris, the first settler on Genesee Prairie, who brought apple seeds with him

from Zanesville, Ohio, his former residence, and planted them on the farm now owned by the same family; and the original orchard is still in thrifty bearing of natural fruit, grown from the seed planted by Mr. Harris in 1829 or 1830.

Aaron Eames set the first orchard on Grand Prairie in 1837, which he continued to extend during his residence there, and embracing every variety of fruit susceptible of cultivation in this section, and he was the first one to meet the demand of our increasing population in the county for fruit.

Kent county, which was settled subsequently to this, for many years received our surplus crop of apples. That county at an early day was not supposed to be adapted to fruit culture, as many other parts of our State were also considered doubtful; but it seems now to claim the right of being part and parcel of the "Fruit Belt," and presents such substantial proof of the right as admits of no question.

PLUMS,

which for a number of years after the early settlement of the county succeeded admirably, bearing in great profusion, and splendid in quality, succumbed to the curculio, its deadly enemy; first in the failure of the fruit, and then in the decay of the tree. Recent experiments in renewing the cultivation of this valuable fruit have met with gratifying success, and it is confidently hoped that former results will again be assured, with the increasing knowledge we are gaining of the habits and means of destruction of this formidable enemy of our fruit culture.

THE PEACH.

There were a few years when the peach crop failed of fruitage, and fears were entertained that we should be obliged to give up this luscious fruit. Peach orchards were cut down, others decayed from age, and very little anxiety prevailed for its further propagation; but an occasional crop was obtained from the trees permitted to live, which revived the appetite for the fruit, and the argument for its further cultivation assumed that even a quadrennial crop would pay for cultivation. New peach orchards were planted, doubtfully at first, but with such unexpected and gratifying results as followed, that we are again having a generous supply of this delicious fruit, not yet in sufficient quantities to meet our local demand, but in quantity, quality, and cost of cultivation, that we may confidently continue to increase our acreage, with assurance of a margin beyond cost. The results of the past winter need not be discouraging; such severe winters are exceptional, and form eras in our climatic history.

THE APPLE.

When we speak of apple cultivation, we feel that its extension may be limitless, with a soil, climate, and location unsurpassed, and direct communication with the fruit-markets of the West and Northwest that must depend mainly upon the fruit crops of western Michigan for their supply for many years, if not for all time. There are doubtless those present who remember how carefully they watched their first specimens of fruitage, the reward of years of toil and waiting, when the numbers could be more easily counted than the barrels of the present. The hope and faith which stimulated the labor now receives its full fruition in the abundance of the annual harvest.

FRUIT

should, more largely than at present, become a component part of our daily diet. As a nation we use too much animal and grain food. Why we do it, is

more from thoughtlessness and habit, than from principles of economy or hygienic science. In the early settlement of the country, in the absence of fruit, we became habituated to heavy diet to supply the bodily waste of excessive labor, and when fruit was counted as among the luxuries, only to be indulged in occasionally. That state of things is already passed, and fruit can now be enjoyed to the full gratification of the appetite, and should be classed with the necessities, rather than with the luxuries—and with hopes of better health.

SMALL FRUITS.

Returning from this digression, we refer to the small fruits as a branch of fruit culture yet in its infancy, but promising large future developments. In the early days of our village organization every householder had his strawberry-patch, and border of currants and raspberries, supplying their domestic wants; and it is only within a score of years that the small fruits have met with a demand that invited their extensive cultivation as a distinct branch of business. It is estimated from the best available data, that the annual sales of what are technically termed the "small fruits" in the Kalamazoo market alone are from \$8,000 to \$10,000; and this does not include the supplies which find a satisfactory market from South Haven and its vicinity.

THE GRAPE.

The cultivation of the grape, under the stimulus of past success, must necessarily be greatly increased. Its fruit as an hygienic diet is being increasingly appreciated, and the place it has occupied as one of our *luxuries*, must give place to that of the *necessaries*. The bluffs about Kalamazoo are admirably adapted to their growth. Those engaged in its culture are constantly experimenting in new varieties, testing their habits, their endurance, their adaptation to our location, their value in a commercial point of view, and their rank will soon be established. To the present time the supply has only been sufficient to meet the increasing local demand for domestic use,—while an unlimited field is open for preserving fruit by the newly invented "Williams' Fruit Preserver," a South Haven invention. If we cannot compete in the markets of the world with the vineyards of the old country, or the dry, rainless climate of California, or of our Southern States, we have succeeded in raising fruit of first quality in open air,—and such fruit commands remunerating prices. The manufacture of wine, by its increased value, will endure the cost of transportation, and give the business to California, where the grape is raised far cheaper than here. But why may we not make valuable use of the "Williams' Fruit Preserver," in converting the grape into the raisin? The high price we pay for this fruit as compared with the quotations of forty years ago, evince a demand, limited only by the price which the purchaser can meet; and those who know anything of the *modus operandi* of the conversion from the ripened grape to the raisin of commerce, the slow, tedious process of sun evaporation of clusters, spread upon the ground, depending upon successive cloudless skies, the watching, turning, assorting, long exposed to dust and sand, will inquire "Has not Yankee ingenuity invented a process by which the work can be done in hours instead of days, and with a degree of cleanliness that will be appreciated by the housewife, whose duties so often require the separation of the fruit from all foreign substances?" And what may be a success with the raisin may be equally so with the fig, which Bidwell and other amateur fruitists of South Haven, are now domesticating to our climate.

With the exception of the small fruit cultivation, fruit-raising is not engaged in as a speciality, but as a part of mixed husbandry.

EXTENT OF ORCHARDS.

Very few orchards in the county cover ten acres of ground, and we know of only two that cover forty acres,—those of C. F. Hayden, of Oshtemo, and O. E. Clark, of Comstock. The quantity of fruit marketed at this place can only be approximated, and it is only of the shipping sales that we can give definite figures, which, in the fall of 1871 amounted to \$25,000 or \$50,000, while there are other and very important centres in this county, in the vicinity of extensive orchards, where large sums are annually paid for apples,—as Schoolcraft, Galesburg, Augusta, and Climax. Much fruit from the eastern part of the county finds sale at Battle Creek.

VARIETIES OF APPLES.

Though not immediately connected with the object of this paper, we digress, to say a few words on the subject of the varieties of apples. In our novitiate experience in fruit-growing, we reasoned, that if more than *one* variety was desirable, every additional variety increased the value of the orchard. Neither labor or expense was spared to obtain scions of every accessible variety, until the orchard contained some 70 varieties of apples. It did not require all the subsequent years to learn that the number of really valuable varieties was embraced in half a score—of winter apples we would limit the number to six, and of the six, four contained the standard varieties that are always in demand. The proprietor can indulge in any choice varieties he fancies, but the market has its standard demands, so that it is labor lost to try to force our likes and dislikes upon an unwilling market.

Summer apples, except for domestic use, are a superfluity in the farm orchard. The fruiting season always comes when the farmer has more important business than marketing a product that fails to bring adequate returns for the labor bestowed, and compels the neglect of more important services to the farm.

A succession of varieties, to extend from the earliest ripening through to the season of apple harvesting in the autumn, is all that can be either desirable or profitable.

The successful introduction of the "Fruit Preserver" may work a revolution in the cultivation of summer apples, to that degree that their production may be a profitable speciality.

Other things being equal, a bright red apple takes the precedence in sales, although the Rhode Island Greening and Roxbury Russet are included in the writer's list of standard varieties. This last, we are aware, will not be accepted by all as one of the four, or even the six standard varieties; but if the object of fruit culture is to secure the largest amount of money in return for labor or capital invested, we should have a large percentage of Roxbury Russets. With proper care in handling and storing, they may be preserved fresh, crispy, and juicy, after other varieties are gone. Its principal value is in its long keeping qualities rather than in its flavor. The writer has kept them a year, and has known of their being kept two years.

THE IMPORTANCE TO THE FRUIT CULTURIST OF SHELTER OR PROTECTION.

AN ESSAY READ BEFORE THE MICHIGAN STATE POMOLOGICAL SOCIETY AT SOUTH HAVEN, BY T. T. LYON, OF PLYMOUTH.

In approaching the question of shelter for plantations of fruit, our first serious embarrassment arises from the copiousness of the subject; especially when associated, as in some respects it is found to be, more or less directly, with questions of temperature, evaporation, rain-fall, and other atmospheric phenomena of a varied character.

Since it is manifestly impracticable, within the narrow limits of an essay, to give even a general elucidation of so broad a subject, we shall mainly confine ourselves, aside from a statement of some important or significant facts or theories, to the question of shelter, in its application to our State, and that with more or less special reference to its bearings upon the circumstances existing along the east shore of Lake Michigan, as they appear to a remote but interested observer.

It has long been considered an admitted fact, that the existence of timber growths in a country has the effect to secure to such country a more considerable rainfall than would otherwise occur; and as evidence of such fact it is stated that the island of Madeira, when first discovered by Europeans, was clothed with timber and enjoyed an ample and well distributed rain-fall; but that, since their advent, the forests have been gradually melting away, till little is now left to decoy the moisture from the passing clouds; and, as a consequence, droughts have been steadily becoming more and more severe, occasioning the failure of the ordinary crops, and compelling the levy of contributions, in other countries, to save the population from the horrors of famine.

Spain is also quoted as furnishing a similar result from the same cause, but on a far more considerable scale, and extending over a far more lengthened period.

A very striking instance of change of climate from this cause is said to be even now in progress on (if we recollect aright) the island of Barbadoes, one of the more eastern West Indies, on a portion of which the timber has been entirely removed in the process of converting it into plantations, for tropical crops; thus giving the ocean winds full sweep from shore to shore. The portion of the island so denuded of timber is said to have become in consequence almost or quite a desert from lack of rain; and this process is extending over the now fertile portions of the island, as rapidly as the forests disappear.

AN UNSETTLED POINT.

More recently, however, a doubt is suggested, among persons of high standing in the scientific world, as to the extent of the efficacy of forests in determining the amount of the rainfall of a country.

It is beyond doubt true, that the rainfall of a country may be more or less influenced by other conditions than that of forest growths; such, for instance, as that of the relative positions of mountain ranges, or indeed any other circumstance operating to disturb the horizontal movements of currents of air. Hence, even when admitting the doubtfulness of the theory heretofore presented, it has yet been urged that if no worse results shall follow the destruction of the forests of a country, it will probably prove true that, from the increasing tendency to the rapid heating and cooling of the exposed surface, with the consequent local creation of atmospheric vortexes, such localities when of considerable extent will be liable to become subject to sudden and deluging showers, and anon to periods of drouth,—the rain clouds passing over them without precipitation.

From the circumstance that nearly all the phenomena attending the generation of rain occur in an invisible medium,—the atmosphere,—and many of them, moreover, at an elevation above the earth usually quite beyond the reach of direct observation; our assumptions as to the real causes operating to produce a fall of rain have been based in a considerable degree upon theory. True, it has long been known that air possesses a certain capacity to hold vapor in suspension, and that such capacity is increased with the increase of temperature, and diminished by cooling. This quality of the atmosphere having long since assumed the dignity of fact, the conclusion became well nigh inevitable that such must be at the foundation of any theory respecting the cause or causes of rainfall. Still the particular *modus operandi* by which the result is wrought out has, to a great extent, eluded direct observation.

At one time meteorologists generally seem to have attributed the precipitation mainly to the mixing of currents of air of different temperatures; under such conditions that the resultant temperature should be such as to compel precipitation of a portion of its moisture. More recently, however, the above cause is believed to be less generally operative than had been formerly supposed; while the result is supposed to be more generally attributable to the elevation and consequent cooling of bodies of air till they are reduced below the point of saturation; such elevation resulting from being forced up the slopes of mountains,—from being forced upward by other bodies of air getting beneath them,—or from rarefaction by the heat of the sun, and consequent rising.

METEOROLOGISTS

have long known that the Caribbean Sea and the Gulf of Mexico, with their torrid climate and almost tepid waters, not only supply the great "Ocean River," the Gulf Stream, with the warmth which its waters transmit across the Atlantic, and which so wonderfully ameliorates the climate of northwestern Europe; doubtless, at the same time, becoming one of the chief causes of the tornadoes that so terribly devastate the West Indies, and the southeastern United States; but that they also supply a passage way for that great aerial river, the northerly branch of the deflected trade wind, which sweeps over their waters, along the northern coast of South America; whence, still further deflected by the Central American, Mexican, and Rocky Mountains, it is converted into an immense eddying vortex, covering the United States and the

Western Atlantic, the waters of the gulf charging it in the transit, to the point of saturation, with the moisture which its high temperature enables it so copiously to receive, and which, in the process of cooling, is as freely precipitated in passing up the great valley of the Mississippi, and over the almost imperceptible height of land into and down the valley of the great lakes, yielding its last tribute of moisture to the mountains of Eastern New York and New England. Fortunate indeed is it for the great West, with its teeming millions of population, that a wise Providence saw fit to open to us so ample a gateway to the gulf, through which we may woo these life-giving breezes; else had these broad valleys been, like the great central plateau of our continent, the home of drought and hopeless desolation.

Although, as has already been stated, the general theory of rainfall and the causes of storms, whether of wind or rain, had been carefully studied by many of the most capable minds, it was not till the invention of the

MAGNETIC TELEGRAPH,

and the wide extension of its lines permitted simultaneous reports from various and widely separated points, nor yet until the establishment, under government auspices, of a thorough system of meteorological reports, from a widely distributed corps of observers, had rendered practicable the collation of a system of simultaneous observations from all parts of the country, that the true theory of the formation of wind and rain storms came to be well understood.

By means of such a system of reports we come to understand that our local storms are generally, if not always, of the nature of whirlwinds of greater or less magnitude; that when of small diameter the whirlwinds are often nearly circular in form, but that extensive storms usually have a vortex greatly elongated in one direction, generally north and south, or nearly so.

It is also found true that such storms, besides their proper gyratory motion, have more or less lateral motion, which, at least in the northwest, is generally eastward or northeastward, and always in a direction nearly at right angles with the longer diameter of the storm. Of course these whirlwinds always originate at points where the lowest barometer indicates a rarefaction and consequent rising of the air, and the winds setting toward such point from all directions come to partake of the gyratory motion; hence the wind often, if not usually, blows from one direction, while the storm cloud arises from another, and the wind usually changes at or near the close of the storm, or in other words when the "storm centre" has passed the observer.

These facts will also serve to explain how, in our State, these storms (which always gyrate from west by south to the east, or in the direction opposite to the motion of the hands of a watch) come from the west and yet are attended by southerly or southeasterly winds, veering during or after the storm to the southwest, and finally to the west and northwest.

Although Michigan is doubtless quite as highly favored as most of the north-western States, so far as amount and distribution of rainfall are concerned, all will doubtless admit that her summer precipitation is usually by no means in excess; and furthermore, that if timber growths exert a favorable influence, either upon its amount or the equability of its distribution, we should by all means adopt the most effective measures to preserve and even increase their efficiency in this respect. We will, of course, be reminded that the full realization of such advantage is impracticable in a settled and cultivated country. True, and yet judicious cultivators usually consider it essential to preserve a

certain proportion of their land in timber. If, now, that amount on each farm, be it a third, a fourth, or even an eighth or tenth of the whole, be located, not in a compact body in the rear, but rather in an extended belt along the exposed sides, say the west and north, the result will be that the whole country will become checkered over with windbreaks, and the general effect will be nearly equivalent to that of a continuous forest, so far as protection from wind and probable effect upon rainfall are concerned.

THE QUESTION OF RAINFALL

is not, however, by any means the only one that arises in connection with that of forest and timber protection. The ability to retain and utilize moisture must be considered as only second to the ability to secure its precipitation. It is a well known fact that the moisture of the soil often disappears with wonderful rapidity under the influence of high winds, when, as in the absence of timber growths or other protection, they come to sweep directly over the surface, while few can have failed to observe that a covering of timber serves to restrain the motion of the wind, or in other words, to more or less perfectly imprison a stratum of the atmosphere next the surface, and of the height of the timber growth, and thus to arrest in an important degree the dissipation of the surface moisture,—a result, to say the least, fully as advantageous as an equivalent increase of the rainfall.

It is doubtless true that, aside from the abstraction of moisture from the soil by plants during the process of growth, a mere covering of growing herbage must, in a slight degree and in the same manner, restrain such evaporation from the surface; while the fruit-grower may congratulate himself with the consideration that a plantation of fruit trees or vines must, when well grown, become still more effective. Still it should not be forgotten that such shelter will prove effective about in proportion to the height of the growth, and the perfectness with which it shall act as a barrier to the motion of such surface stratum of air. A regular open plantation, such as our orchards generally are, will, in this respect, be usually less effective than occasional dense windbreaks consisting of fully-grown forest trees, when extending in a direction transverse to the motion of the wind, while the effect of such an aggregation or system of timber belts as has been heretofore proposed, would be to largely restrain the onward movement of the atmosphere, with the accompanying dissipation of the surface moisture, even in the intervening spaces.

We have assumed, as we doubt not we are warranted in doing, that

SURFACE EVAPORATION

proceeds nearly in the ratio of the velocity of the winds at the surface, and we cannot better illustrate the increased result from free exposure than by reference to a case in which the aggregated effects are made manifest to the eye of the observer, that of the drifting of winter snows. No doubt we all have had occasion to observe that in cases in which from the joining of clearings along a highway, or from other causes, a range, sometimes of several miles, is left open to the westerly storm, the north and south fences soon become lined with the accumulated drifts, while the north and south streets are pretty sure, if fenced, to become buried, often across their entire width and from top to top of the fences, while perhaps only a few rods distant, but under the lee of a forest, even though from forty to eighty rods away, very little drifting will be found to have occurred.

But, important as the facts already elucidated would seem to be, we shall find inseparably associated with them, yet another fact scarcely less important, although comparatively overlooked, doubtless because less amenable to merely casual observation. I allude to the increased loss of heat from the soil with open exposure and free and rapid evaporation of moisture.

It is well understood that in clear evenings the radiation of heat into space very rapidly reduces the temperature of the surface of the earth, but that the intervention of clouds at once checks, and indeed, nearly arrests this radiation. Well known as is this fact, it may not have occurred to all that the umbrageous covering of a forest may prove almost as effective as a mantle of vapor, while its influence can be had, even when the former shall fail of an appearance.

Our school-boy lessons have also taught us that in the process of the evaporation of a given amount of water from the surface of the earth it absorbs and renders latent about five and one-half times as much heat as would suffice to raise that amount of water from the freezing to the boiling point, and it cannot be assumed that such heat is returned to the surface with the return of this moisture in the form of rain, for the reason that it is released from its imprisonment, in the atmosphere, in the process of the conversion of vapor into rain-drops.

From the facts above stated, the unavoidable inference would seem to be that every acre of timber, whether spared or replanted, acts as a

STORE HOUSE

of reserved moisture and warmth, going to increase the fertility and general temperature of the immediate locality, and acting as a check upon the liability to sudden frosts by contributing to the maintenance of a more perfect equilibrium of temperature. The cases in which moisture is already in excess, call for the application of a distinct set of ideas, and, of course, are not to be subjected to the above course of reasoning.

Thus far we have considered this subject in a more or less general aspect; although with reference to an ultimate application to the case of our own State.

There are believed to be few persons who now suppose that the great lakes yield any very considerable share of the moisture which supplies the rainfalls of this State, and, if there ever existed a plausible reason for such a supposition, the facts gathered up and systematized within the last few years under the auspices of the Signal Bureau at Washington would seem pretty effectually to set the subject before us in a new light. The facts seem to be that these bodies of water do not essentially affect the rainfall of the adjacent regions, while they do operate as a means of equalizing temperatures, by storing up in their depths the surplus heat of the warm season, and slowly imparting it to the colder winds of winter as they pass over its surface. That *we* enjoy the benefits of such equalization, instead of our sister State, Wisconsin, is due to the, to us, very important fact that the prevailing winds are in our favor. It matters very little to us, however, from what source our rainfalls may chance to be derived, as our proximate interest consists in being able to assure to ourselves, as it passes, such a share of it as shall prove adequate to our wants. If there be real truth in the theory of the influence of timber growths upon the precipitation of rain as applied to Michigan, or even in that of its effects, upon the retention of heat and moisture, as heretofore stated, then it behooves us to stay the ax, and substitute for it the spade of the planter in our older settled

regions, and at once institute measures to indoctrinate with the lessons of the past the inhabitants of our more recently settled regions.

Whatever may be the views of people of other localities, in Michigan we can have no occasion for uncertainty as to the benefits of

TIMBER PROTECTION,

whether to the farmer or to the fruit-grower. Thirty years ago when the merciless ax of the pioneer had as yet but commenced its inroads upon the forest mantle of our beautiful peninsula, the wheat fields that nestled here and there among our primeval forests produced crops that rendered Michigan the banner wheat-growing State of the West so far as quality was concerned, furnishing, as it came to do, much of the material for the then famous "Genesee Flour," undergoing for that purpose its transmutation in the mills of Western New York—a material which is now, from necessity, drawn mainly from the more remote West.

In those days too, the planters of the young, healthy and vigorous apple orchards, introduced from New York and New England, and which luxuriated under the lee of these same forests, were oblivious of the unexperienced perils of winter-killing and blight that has since overtaken them, while specimens of their fruit, when returned to the localities in which the varieties originated, were denounced as spurious, so wonderfully had their improvement transcended what were believed to be the possibilities of the case.

Then, too, that now almost tabooed fruit, the peach, was grown everywhere with almost, if not quite, as much certainty as the Black Cap, or even the currant, and with no fear of the winter-killing of either tree or fruit. Those halcyon days, alas, are gone! never, we fear, to return; and we have naught that we can do but to lament the sad ruin so stealthily wrought by the means of that little instrument, the ax, which in the grasp of our sturdy pioneers seems as little amenable to reason as were said to be the bayonets of the elder Napoleon.

Gladly would we find occasion to charge the calamity upon a sudden freak of the frost-king, or be able to take refuge behind some theory of cycles of climatic variations. But no!—neither history nor precedent seems to warrant such assumption, unless we refer it to that grand and yet uncompleted cycle, the curves of whose temperatures tend ever downward, and in the course of which our fruit bearing trees have come to succeed the *Sigillariæ* and *Calamites*, the *Lepidodendra* and *Conifers* of eras redolent of clouds and tepid moisture; and in their turn may possibly, in the remote periods of a geology yet to be, become embalmed in the rocks of a then bygone era, and come to excite the wonder of some succeeding race, to which we may doubtless be as to us are now the *Saurians* and *Pachydermata* of the remote past. But such cycles are of a character too remote for our present consideration, while science, with unerring finger, is pointing to our treeless plains, swept by parching blast in summer and arctic gales in winter, as the true and present cause of the dire calamity.

The acceptance of this conclusion carries with it the further conclusion that the work of destruction is yet far from complete, but is rather proceeding at an accelerated rate, and that if allowed to progress unchecked it is difficult to imagine when and at how calamitous a point the evil will culminate. We are already compelled, in some portions of the State, to abandon many of what we had learned to consider as our best or most desirable varieties of fruit, and to substitute for them those that have come to be designated as "Iron clads,"

because of their ability to withstand our trying winters, and the partial failure of even some of these during the past winter may well suggest the query whether we may not, like the fruit growers of other portions of the northwest, be ultimately driven to resort to the unimpeachably hardy Siberian Crab!

Having thus called attention to the imminence and extent of

THE DANGER,

and also to its cause, the question naturally arises, what is the remedy? or in what direction is it to be sought? To our mind there seems but one remedy for the errors committed, and that remedy seems to lie in the restoring by planting of a reasonable proportion of woodland, so distributed as shall be found most conducive to the desired end. In the newer regions of the State, however, it may doubtless yet be practicable, in a good degree, to prevent the occurrence of the calamity, by setting aside and preserving properly selected portions of the native growth, to be kept and perpetually renewed as windbreaks, as heretofore suggested.

Admitting the magnitude of the evil, and also the sufficiency of the proposed remedy, it becomes a serious problem to determine how we are to secure its proper and effective application.

Some years since, in conjunction with the late Secretary of the State Board of Agriculture, a memorial was drawn up and presented to the Legislature, asking for a report on the general subject, to be published for the benefit of the people of the State, and also for legislation to advance the object. In accordance with such memorial a very able report was prepared and widely published; and, at the same time, the highway law was so amended as to provide for and encourage the planting and preservation of

ROADSIDE TREES.

But, although these provisions were doubtless wise and judicious, they seem in the main to have failed in securing the object, doubtless for the reason that the great mass of our people have as yet not learned to realize the great and pressing importance of the subject. Under some of the stronger European governments, the cutting of timber is so regulated by law that the process of destruction is kept within what the government considers judicious limits, but in more democratic America we can brook no such restraint, and hence we seem likely to be able to reach the end only by educating the masses of our people.

We may, however, be allowed to suggest that much might be done by taking advantage of the very general dislike of taxation, to excite attention to the matter by the passage of a law providing for the planting and preservation of windbreaks of suitable width and density, along the exposed sides of farms, and exempting the land so occupied from the payment of taxes.

Doubtless it would also be advisable, in some similar manner to encourage

THE PLANTING OF TREES

along the borders of fields and about yards and buildings, as well as along highways; but it is believed that little general attention can be secured, to the subject till the great mass of our agricultural population come to properly realize to how great an extent they are affected, *in purse*, from lack of acquaintance with the subject. In attempting to secure this result, we would suggest the propriety of the establishment of a State Secretaryship, Bureau, or

Department of Agricultural Meteorology, whose duty it shall be to gather up and disseminate facts bearing upon this subject, acting for that purpose, in harmony and concert with the corresponding bureau at Washington. It would also seem of the highest importance that, as a means of bringing the whole subject to bear properly upon the future of our State, the scientific principles of at least Agricultural Meteorology, with their proximate applications, should be embodied in a

TEXT BOOK,

which should be introduced, and required to be taught in our primary schools as well as in our higher institutions of learning.

Sombre as is the cloud that for some years has seemed to threaten the heretofore brilliant prospects of fruit-culture in Michigan, it is not without its "silver lining." Even at the worst, we have greatly the advantage of most of our sister States; while even the injury already so unwittingly done, is not utterly beyond recall, and in a very large proportion of the State the means of prevention are yet in the hands of our people; and even if we shall neglect or refuse to avail ourselves of these, and shall come to suffer the full penalty which an all wise Providence is certain to inflict upon those who ignore His laws and disregard His warnings; fortunately for her devotees, there remains to them, beside the sheltering ægis of our frost-repelling and moisture distilling lake, a Pomorial Paradise, which can by no possibility be shorn of its glory, as the consequence of any backward stride in the grand march of improvement, of which heretofore we have all been so justly proud. Here, secure that neither the ax of the woodsman, nor the sweep of the "fire fiend," can ever subject them to the calamities that so fatally interfere with the success of their less favored co-laborers, they can indulge the pursuit of their chosen vocation to their hearts' content. Yet they are not, even here, to be permitted entirely to escape the ills peculiar to their vocation,—ills from which, since the days of our first parents, no Eden seems to offer us a refuge. Drought, frost, storm, and even tornado must, here as elsewhere, be anticipated and provided against.

THE RAIN BEARING WINDS,

crossing the lake, as has been heretofore described, are of course deflected upwards on coming in contact with the shore; and the degree of such deflection, and the consequent probability of its becoming the cause of a fall of rain, must depend greatly upon the height or boldness of the shore. If, now, there be added to the height of the shore proper that of a dense growth of timber, just so much is doubtless added to the probability of accompanying rain. The correctness of this theory would seem to be confirmed by the circumstance that, where the shore is but of moderate height, the land rising gradually as we go inland, we find the rainfall, or at least the snowfall, *least* near the lake, while the fact that the rainfall along the high, bold shores of Grand Traverse Bay is greater than at points farther south where the shores are less bold, would seem also to be confirmatory of the same theory. These ideas are advanced here for the purpose of inviting the attention of residents along the lake shore to the question of the probable advantage, in this respect, of the preservation of a growth of timber adjacent to the lake, as well as to the benefits of timber belts at points more remote.

It should not be forgotten that the real advantage of lake protection con-

sists, not so much in an actual increase of the average temperature of the entire year, as in the comparative equalization of the same by the absorption of heat in summer, and the returning of such heat to the atmosphere during winter; the effect being to protract the cold weather of the latter part of winter and spring till the waters of the lake have become perceptibly warmed by the rays of the sun. The necessary inference from these facts is that it must be beneficial to protect crops, whether of grain or fruit, as far as practicable, from the direct influence of the lake winds during the early part of the season.

It will be recollected that in the course of the discussions at some one of the earlier meetings of our State Pomological Society, the idea was advanced by lake shore fruit men, that the interposition of timber between their plantations and the lake had apparently acted as a check upon the free passage of air, and in so doing had occasioned injuries from spring frosts which otherwise might not have occurred, from which assumption occasion was taken to advocate the clearing away of such timber, leaving the plantations directly exposed to the winds and storms from the lake.

We are willing to concede that a forest, or even a belt of timber, would be likely in a slight degree (and more especially if the slopes were quite gradual),

TO CHECK THE OUTFLOW OF COLD AIR,

during a frosty night, and that a plantation, in such case, might be subjected in a somewhat increased degree to liability to frost; still such increased liability must necessarily be slight, and in our judgment not at all commensurate with the danger of loss of crops from full exposure to the long cold storms from the lake, so liable to occur during the fructification of the blossom and the setting of the fruit, and which, even in interior localities, and hence comparatively sheltered, sometimes quite as seriously affect the crop as do occasional spring frosts.

To the above considerations must be added the greatly increased force of the lake winds upon the trees when loaded with fruit, and hence very liable to be seriously if not fatally injured. The increased loss of fruit, from blowing down before the time of gathering, will also be found to be no inconsiderable item in the account; and if to these considerations we add the increased liability to injury during such trying winters as the one just past, and possibly even during more moderate ones, it hardly seems possible to doubt that the preponderance will be on the side of protection.

We were forcibly impressed with the importance of these considerations, so far at least as winter protection is concerned, when, in passing along the lake shore in the vicinity of South Haven, not long since, we were shown what had evidently been a fine plantation of peach trees, situated at a point where the timber directly along the shore had been cleared away, letting in the full force of the winds from off the lake, and where, apparently as a consequence, the peach trees had been utterly ruined by the severity of the past winter, except where a fence had intervened and possibly prevented the drifting away of the snow. That

TOO FREE EXPOSURE

was the true cause of the misfortune was also strongly confirmed by the healthy condition of a similar plantation in the vicinity, but fully protected by an intervening belt of timber, in which scarcely a tree showed signs of injury.

While the considerations already advanced are generally of prime importance as bearing upon the question of the success or failure of a plantation of

fruit trees in a given location, and hence may be made the sole test (so far as this question is concerned,) of the eligibility or desirableness of a situation for this purpose; there are circumstances quite foreign to these, which, in a different state of affairs, become even paramount to them.

By a well known law governing the motions of fluids, air as it becomes cooled by radiation, during a still cold night, settles slowly and almost imperceptibly into the lowest places, and hence it is not a very uncommon circumstance that, along the slopes of a valley, the line of division between the cold and the warm air is so well defined that the trees and even the branches below such line will be found bare of fruit, while those above it are bearing a full crop. In level, or even comparatively level regions, this rule has, of course, but a limited application, while in more hilly, and especially in very hilly or mountainous regions, it becomes the dominant consideration, in the choice of a locality for orchard planting. The movements of the cold air, in such cases, are obedient to the general laws that control the motions of water under similar circumstances; and hence it will find an outfall down the slopes and valleys or ravines, which supply the general drainage of the country. This law has also been found to apply in its fullest force, in the choice of localities in which to evade the severity of the winters, which sometimes so severely try the hardiness of our orchards, and hence in such localities as that about Grand Traverse Bay, as well as the rolling or "knobby" lands occasionally occurring in the interior of the State, where the surface is much broken by valleys or ravines, the question of "atmospheric drainage" becomes of primary importance in the selection of a locality for a fruit plantation; while it also becomes essential to secure a location high and abrupt enough to provide a ready escape of the cold air, and also abundant space below to receive it and admit of its diffusion.

It is a common statement that our prevailing winds are from the southwest, and this is doubtless true of them as a whole. We doubt not, however, that when we consider only the easterly half the lower peninsula, and that simply for the period for March 1st to June 1st, we shall find a prevalence of easterly and northeasterly winds, and that, from these, that portion of the State derives quite as efficient a protection from spring frosts as does the westerly half from Lake Michigan; hence, for the hardy fruits, represented by the apple, which may, to a certain extent, be grown in disregard of the occasional "arctic waves" of cold which visit our peninsula, this region has long enjoyed a high reputation.

Precisely how, and to what extent, these lake influences operate to modify our climate,—whether by actual increase of rainfall, or by its more favorable distribution through the season, or merely by their influence upon the general condition of the atmosphere, as to warmth or moisture, or by a combination of a part or all of them, may very naturally be regarded as controvertible points. Yet the fact remains that such influence does exist, and that it is very potent in its character, and co-extensive with the sweep of the prevalent winds passing over these lakes.

As proof of the correctness of these assumptions, we shall find a broad belt of timbered lands extending along the entire westerly shore of the easterly lakes and their connecting straits; fringed, as we approach the central portions of the State, with "oak openings," especially toward the south.

If, now, we draw a line from near the southeasterly margin of Lake Michigan, across the State, as nearly as practicable in the direction of the prevailing southwesterly winds, till we come within reach of the climatic influences

of our eastern lakes,—after making a reasonable allowance for the mixing and shading into each other of these diverse influences,—we shall find nearly all the timber lands of western and central Michigan, on the northwesterly side of such line, and hence within reach of the influences of the winds passing over Lake Michigan; while upon the opposite side will remain the great body of the treeless and lightly timbered lands of the State; corresponding more nearly to those of the western plains and prairies, and apparently, to a great extent, the result of a similar combination of climatic influences, thus affording very conclusive evidence of the favorable influence of the lake winds upon tree growth.

In drawing inferences from these last facts, we may be allowed the remark, that the timber growths of Michigan may be assumed to be the result, to a great extent, of the lake influence exerted during the growing season; and that the protection of fruit growth results, quite as essentially, to say the least, from such influence exerted during the winter; hence the fact that the latter can only be relied on as fully effective, within comparatively short distances inland; while the former is found to be in a considerable degree potent, across the entire breadth of the peninsula.

The facts elaborated during the discussion of the subject, seem also to impel us to the conclusion, so far-reaching in inferences, that the timber growths resulting from lake influence become, in turn, a medium for the husbanding and extending or diffusing of such influence; so that while nature's leafy mantle remains comparatively undisturbed, the joint lake and forest protection may be relied on as effective, in almost any locality in which they shall be found associated, even for the growth of the more tender fruits, as was found to be generally the case in the early settlement of the country.

CONCLUSION.

We might, in conclusion, evoke the aid of statistics, for the purpose of enforcing upon the public mind the immense pecuniary consequences that impend upon the proper working out of this great problem. No doubt if the relative statistical value of the mere orchard interest of the State could be correctly elaborated and spread before us, it would demonstrate that the amount of capital invested in the culture of fruit and fruit trees in Michigan exceeds that invested in stock raising, wheat growing, or any other single interest to which the agriculture of the State is devoted; and that the total of losses in this interest alone, the result of mere ignorance or thoughtlessness, would, could they be saved and utilized for the purpose, prove more than doubly adequate to the payment from year to year, of our entire State, county, and town or other municipal expenses.

This may, to many of us, at first thought, be esteemed a random statement, and hence unworthy of careful consideration, and we are aware that no proper attempt has ever been made, by State authority or otherwise, to properly ascertain the relative value of this interest; nor yet to determine the extent to which increased knowledge and improved systems of management may be made to minister to the increase of the wealth of our people from this source. If, therefore, this discussion of the question shall have the effect to direct public attention to the matter, and by so doing shall lead to the ultimate remedying of the omission, I shall feel that my effort has not been entirely vain.

PROCEEDINGS OF THE WESTERN NEW YORK HORTICULTURAL SOCIETY.

REPORTED AND CONDENSED FOR THE MICHIGAN STATE POMOLOGICAL SOCIETY BY P. C. REYNOLDS, HORTICULTURAL EDITOR OF THE AMERICAN RURAL HOME, ROCHESTER, NEW YORK.

The eminent character and usefulness of the annual meetings of the Western New York Horticultural Society will best be indicated by the officers and committees for the year 1874, which are as follows:

President—Patrick Barry, Rochester.

Vice Presidents—S. S. Graves, Geneva; H. E. Hooker, Rochester; C. L. Hoag, Lockport.

Secretary and Treasurer—P. C. Reynolds, Rochester.

Executive Committee—W. C. Barry, Rochester; T. B. Yale, Brighton; John J. Thomas, Union Springs; T. C. Maxwell, Geneva; E. Moody, Lockport.

Committee on Native Fruits—J. J. Thomas, Union Springs; Chas. Downing, Newburgh; W. C. Barry, Rochester; G. S. Conover, Geneva; W. B. Smith, Syracuse.

Foreign Fruits—George Ellwanger, Rochester; T. C. Maxwell, Geneva; J. H. Babcock, Lockport.

Nomenclature—Chas. Downing, Newburgh; P. Barry, Rochester; J. J. Thomas, Union Springs; D. W. Beadle, St. Catharines, Ont.; George H. Ellwanger, Rochester.

Entomology—Hugh T. Brooks, Pearl Creek; E. W. Sylvester, Lyons; E. W. Herendeen, Geneva; Mr. Saunders, Ont.

Ornamental Trees and Plants—Geo. Ellwanger, Rochester; W. S. Little, Rochester; T. C. Maxwell, Geneva; G. Zimmerman, Buffalo.

Garden Vegetables—E. S. Hayward, Rochester; John Craine, Lockport; J. W. Gray, Albion.

Ornithology—Geo. T. Fish, Rochester; H. T. Brooks, Pearl Creek; E. W. Herendeen, Geneva.

Botany—W. C. Barry, Rochester; J. J. Thomas, Union Springs; D. W. Beadle, St. Catharines, Ont.; C. M. Hooker, Rochester.

ANNUAL MEETING.

The nineteenth annual meeting of the Society convened at Rochester, in the common council chamber, January 7th, 1874, at 11 o'clock, A. M. The President, Patrick Barry, took the chair, and called the meeting to order.

There was a good attendance of horticulturists from the different nursery and fruit centers of New York,—Lockport, Rochester, Geneva, and Syracuse; those eminent, reliable pomologists, Charles Downing and John J. Thomas, together with noted pomologists representing State and local societies, as follows: T. T. Lyons and Mr. Law, of South Haven Pomological Society, Michigan; Dr. J. W. Dunham and Mr. Harrison, Ohio, and Dr. D. W. Beadle, and George Leslie, Jr., Ontario.

The first subject for discussion, namely, that referring to the causes of the

DECLINE OF VARIETIES,

was taken up. The President, in announcing the topic, and by way of illustrating its purpose, said we know the Virgalieu pear was a variety which had declined at the seaboard twenty years ago, was now a total failure here, and still prospered at the West. The decline of varieties was attributed to various causes. Some claim, as was maintained in a paper read before the American Institute Farmers' Club, that it was due to a long course of propagation by grafting and budding; others said the cause was in the soil, or in a change of climate. It was therefore a subject capable of discussion.

Mr. Thomas was called upon for an opinion, and began by saying that the pear referred to had proved productive in some localities and not in others, during the same years. Last year he had taken specimens of the Virgalieu from one tree which were sound and handsome. He believed it was useless to attempt a discovery of the reasons why varieties declined, if they did decline, and thought the question really was whether our fruits generally were as good now as when the country was new. His own opinion was that no deterioration had taken place, but that our tastes had become more refined and critical. Those who maintained the opposite were misled by their imagination. The cause of their preference was the same as that which led to the praises bestowed upon a variety of wild grape from the Rocky Mountains, which had been transplanted in Col. Carr's garden, Philadelphia. The men who first tasted these grapes had just crossed the plains, and no wonder they went into ecstasies over the first they had tasted for months. He himself never tasted more austere or repulsive fruit than these very grapes. There might, however, be a deterioration in fruit because the soil had been allowed to deteriorate. Heavy soils had settled three inches or more, and vegetable matters had passed out, leaving the residue compact,—a hinderance which underdrainage would remove. Another cause of trouble was the increase of insects, for which our orchards had offered tempting food. We had invited them in by the increase of fruit culture, and must now fight them as best we may.

Mr. Lyon, of Michigan, said the Virgalieu was still successful there. It cracked slightly, however, and was not so popular as some other varieties. There was already a slight indication of that decline which the variety had so fatally experienced at the East.

Mr. Hayward thought the Virgalieu was improving here. This year the variety had been perfect, whether from dwarf or standard trees.

Mr. Fowler knew a tract, only two miles from Rochester, where the Virgalieu had never failed from scab till two seasons since. He had thought at first that this was because the orchard was on the east side of a hill and therefore sheltered. But as the crop had failed year before last, the reasoning fell to the ground. This season the fruit had again proved sound.

Mr. Crane thought the scab which had spoiled the Virgalieu was, like the fire-blight, periodic. Both were due to atmospheric causes.

Mr. Beadle had heard an entomologist say that if at any time there was trouble with fruit, a bug was to the bottom of it. He wanted the committee on entomology to look at the Virgalieu pear, as it might appear after all that an insect had caused the mischief in this case.

Mr. Brooks had never shipped better pears of this variety than during the present season.

Mr. Thomas differed with Dr. Beadle. Did not believe the cracking was caused by an insect, but the microscope showed that it was caused by a cryptogamous plant.

Some one suggested that perhaps budding and grafting was a cause of cracking, but Mr. Jones did not believe that it had anything to do with it. Trees of Virgalieus taken from the East to the West bore fair fruit.

Mr. H. E. Hooker thought the evidence that fruit declined was very inadequate. We certainly had less success for a time with certain varieties, but there was no proof, for instance, that a good specimen of the Bartlett was not as fine as ever. There was an advance, and a permanent one, in fruits. A variety propagated from grafts and buds was stable, it preserved all its original excellence. But when raised from seed the matter might be altogether different. In all other cases, variation in excellence was owing to unfavorable years, insects, or other similar causes. Vegetables, grains, and grasses, being raised from seed, were liable to decline, however, from want of care in preserving the best seeds, etc. He maintained, finally, that there was no evidence of intrinsic decline in fruits, and if so, then the present discussion was useless.

Mr. Quinby referred to vegetables, and said there was no doubt of the running out of varieties. The old Pinkeye potatoe, for example, had declined in quality as well as quantity of yield. The same was true of the Mercer, and even the Early Rose did not now bear as well as when introduced a few years back.

The President arose to explain that by the word "decline," as applied to fruits in this topic, it was the intention to convey the idea that certain varieties were no longer profitable to grow. No one would plant the Virgalieu now for profit, or the Flemish Beauty. Was the unprofitable nature of the crop due to exhaustion of soil, or to climate, or age? If to age, then why were new varieties often attacked and soon rendered useless as a market crop?

Dr. Sylvester thought that decline was caused neither by old age nor manner of propagation. Twenty-two years ago he had set out an orchard of the Virgalieu standard trees at an after loss of several thousand dollars. The crop at that time was selling at a high price. No defects had appeared here, and this induced the venture. But the disease had slowly approached from the East. The fruit had first cracked, then fungus appeared, and he had been eventually forced to graft over all the trees in the orchard. That this was not a good plan he was now convinced. The disease, whether fungus or insect, was inherent in the tree. But half of his grafts had been successful.

A member observed that the disease was transported on main lines of communication, and to prove this view cited that in out-of-the-way districts of Sodus the Virgalieu had prospered eight or ten years after the failure of the crop in this part of the State.

Mr. Smith, of Syracuse, wished to state a fact which might have value. He had an orchard in a locality subject to annual overflow. Of the varieties in that orchard, Virgalieus, Seckels, Flemish Beauties, etc., he has never found any imperfect from the diseases which often attacked the same varieties on dry ground.



THE WHITE LEAVED LINDEN.

The American Linden, or Basswood, is a rapid growing beautiful native tree, with large leaves and fragrant flowers.

The White Leaved (*alba*) is a vigorous, handsome growing tree; one of the best; foliage quite gray.

ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

The President differed with Dr. Sylvester upon the results of grafting on Virgalieu stocks. He had grafted over a large number of trees of this variety with perfect success. The grafted fruit never showed the slightest symptoms of the same disease except it was in varieties similar in nature to the original stock.

Dr. Sylvester asked Mr. Barry if the latter had grafted on dwarfs, and receiving an affirmative answer, said his were standards.

Mr. Barry replied that he had grafted on both and found the Virgalieu the best of all stocks in every respect. It would seem, he added, that the Buffam was a good stock, because a strong and rapid grower, but it was inferior to that which Dr. Sylvester had condemned.

Messrs. Ellwanger, Downing, and another member, agreed with Mr. Barry that the Virgalieu is one of the best stocks to graft upon.

Mr. Codling remarked that he had an idea the season for Virgalieus was coming round once more, and he believed the time was approaching when we should have as good crops as ever of this variety.

Mr. Lyon, of Michigan, asked if the Flemish Beauty had failed in Western New York, and was informed by the President that it had, like the White Doyenne.

Mr. H. A. Langworthy thought the discussion had turned long enough on pears, and therefore referred to apples, which in his opinion were not now as good as in former years.

He was interrupted by the pertinent question whether the apple crop of 1872 had not been the largest ever known.

Messrs. Quinby and Hooker instanced the Newtown Pippin as having improved within a year or two.

Mr. Ellwanger thought that the influence of the weather when the trees were in bloom should not be overlooked in this discussion. If the weather was cold and wet at that time, the pollen was destroyed.

At this point the President suggested that the Society proceed to the discussion of the second question, namely, that relating to the

TREATMENT OF ORCHARD SOILS.

This, he said, was an important topic, as it lay at the foundation of success. There were various theories about it. While the trees were young, it was generally agreed the ground should be cultivated and kept mellow; but many said it was better to sow down afterwards with grass.

Mr. Thomas was of opinion that the soil should be kept mellow in young orchards. The depth of cultivation might be one or seven inches, indifferently. One caution only should be used, and that was not to cultivate to any depth while the trees were growing. He had seen a four-acre orchard lot in New England ploughed so deep that four cart-loads of roots had been drawn away afterwards. This was done early in the spring, and apparently without detriment. In older orchards cultivation was of less importance, provided the ground was heavily manured. It was therefore impossible to lay down an unbending rule. Men should act according to circumstances and according to the condition of the trees. If growing too slowly, the orchard must be manured and cultivated. If very thrifty, it might be seeded down for a few years. To say what should be done with an orchard without seeing it was the same as prescribing for a patient without visiting him.

Dr. Sylvester was an advocate of grass in orchards. Has an apple orchard

that has been in grass eighteen years, and continued thrifty, bearing good crops. Had a dwarf pear orchard that had been sixteen years in grass, and yielded fruit that amounted to from \$500 to \$1,000 per acre annually. Manures his trees every fall with lime, ashes and muck. His pear trees are ten feet apart each way, and he plows, in the fall, three or four furrows midway between the rows, both ways, which he drags down in the spring, the grass growing upon them during the summer. This leaves a square around the trees from six to eight feet across, that is never cultivated. Mows the grass, sometimes taking it off, and sometimes using it as mulch around the trees. Would cultivate young orchards three or four years, and then leave in grass.

Mr. Saunders, of Washington, had managed in this way, and exhibited at Richmond pears as large as from California.

Mr. W. C. Berry thought the grass theory East differs from that practiced by Dr. Sylvester. He plows between the rows of pears, and that was not growing in grass. What we want to know is whether it is better to cultivate, or let them alone.

H. E. Hooker had been interested in the grass theory. Had noticed that trees about the door-yard, hen-yard, calf-yard, and other out of the way places where the plow had never been, produced the best fruit. They had been manured by the animals, and the ground near the surface was full of roots. You can not keep up the fertility by plowing without manure. Has known trees checked by plowing. He thought the great end gained by manuring and not plowing, is that the roots grow near the surface, where the best conditions of growth exist. Nature manures upon the surface. You can not waste manure by spreading it upon the surface. Has found that trees set deep did not grow as well as those planted more shallow.

Mr. Thomas would call attention to the fact that Mr. Sylvester plows just where the young roots are that supply the trees with nourishment. The roots extend as far on each side as the height of the tree, often more, thus forming a circle of roots whose diameter is twice as great, and sometimes three times as great as the height of the tree.

Mr. Harris believes, theoretically, in cultivation, but practically allows his orchard to remain in grass for convenience in pasturing his Cotswold sheep. Believes that cultivating is manuring. Does not see how grass can benefit an orchard. Has some trees cultivated that bear as well as those in grass, manured.

Mr. Barry believes the advantage claimed for grass is, that it keeps the ground cooler.

W. B. Smith thought that keeping orchards in grass is more expensive than cultivation. The heavy manuring, cutting the grass, mulching, etc., cost more in labor and money than cultivation.

Mr. W. C. Barry saw Mr. Yeoman's pear orchards last year, and noticed that they made but little growth. Trees did not appear vigorous, although loaded with fruit. Believes orchards kept in grass will run out.

A gentleman said that he had known Mr. Yeoman's orchard from time of planting to the present, and since they have been in grass, they have increased in bearing. Thought the small growth referred to caused by bearing a heavy crop the previous year. He mulches in fall from six to eight inches in depth, and allows it to remain.

Mr. Quinby thought, from his experience, that peaches should always be

cultivated; apples while young; but that pears do better in grass. Thought that plowing pears had increased their destruction by blight.

The President closed the discussion by saying that his experience was all in favor of cultivation. You could not grow the finest fruit, such as was now demanded, without it. Does not care whether you make mellow by manure or plowing. Men could easily allow their trees to stand in grass, in fact that was the natural temptation. They could turn them out to grass, and as soon as they do that, they might grub them up at once. He had found that cultivation alone was at least as much to be recommended as grassing, even with the most unlimited amount of fertilizing.

The Society, at this point, adjourned to 7 o'clock in the evening.

EVENING SESSION.

The Society was called to order at 7:30 o'clock by Mr. Graves, the Vice President, who, in the absence of the President, Mr. Barry, occupied the chair. The first subject for discussion was

THE WINTER PROTECTION OR CARE OF GRAPE VINES.

Mr. C. L. Hoag, of Lockport, thought that if grape vines were tender, they should be protected.

Mr. J. H. Babcock said hardy varieties do not need protection, and he did not think it best to cultivate any others. Our leading sorts will endure the winter, exposed upon the trellis, and he did not consider it any advantage to cover them.

Mr. Craine finds it better to leave the vines on the trellis, better than laying them down. Those on the ground were injured more than those left on the trellis. Seldom loses buds from winter; sometimes young vines are injured, but old ones rarely, unless vines overbear and do not ripen their wood.

Mr. Farley, of Union Springs, said that hardy vines are seldom injured in his locality when left upon the trellis. Tender varieties he cuts loose from trellis, lays upon the ground, and places a weight upon them. When covered with earth had not done well.

Mr. Smith, of Syracuse, said: Occasionally grapes killed in his locality. He lays on the ground, and covers with a shovelful of earth. Isabellas and Catawbas were sometimes injured on trellis.

Dr. Dunham, of Ohio, believed that vines that will not stand the winter should be rejected. Last winter vines killed from overbearing. Vineyards of Catawba had borne from five to six tons to the acre the previous year, preventing the vines from maturing. He has nearly twenty acres, and with the exception of last year, has not failed of realizing a good crop in fifteen years. Concord is hardy with him. Does not cover any of his vines, but rejects those not hardy enough to stand the winter without.

Mr. Harrison, of Ohio, said that two years old vines had killed with him, and it could not be attributed to overbearing. His vines had mildewed. Mr. Dunham thought the mildewing accounted for their winter-killing.



THE PURPLE LEAVED MAPLE.

The Sugar Maple is a well known native tree, valuable both for the production of sugar and for its wood ; its stately growth, fine form and foliage make it desirable as an ornamental and shade tree.

The Silver Leaved Maple is a valuable street and park tree ; growth rapid ; leaves white underneath.

The European Sycamore Maple is a variety of rapid growth, with a smooth ash-gray bark and spreading branches.

The Purple Leaved Maple (see cut) is a beautiful variety of the European Sycamore ; leaves purplish red underneath.

ELLWANGER & BARRY.
Rochester, N. Y.

THE WINTER PROTECTION OF RASPBERRIES AND BLACKBERRIES.

Mr. P. C. Reynolds, of Rochester, said that his winter protection of blackberries consisted in abstaining from summer and autumn cultivation. Had found, as long as he gave them mellow culture through the season, the canes did not mature, and they would winter-kill, but when he ceased, after cleaning them out once in the spring, they seldom froze in winter. Blackberries in grass are no more liable to winter-kill than wild ones. Gives black raspberries no winter protection, but the tenderer red varieties he covers with a shovelful of earth on the tips of the canes.

Mr. Jones, of Rochester, would never cultivate blackberries except in spring. Had two plantations of Kittatinnies; cultivated one by accident all summer, and they all winter-killed; the other was only cultivated in the spring, and went through the winter uninjured.

MOST PROFITABLE VARIETIES OF APPLES.

Mr. Babcock, of Lockport, considered Baldwin, Rhode Island Greening, and Roxbury Russet most profitable of all varieties. The Twenty-Ounce and some summer varieties may pay well in certain localities—but for winter nothing equal to three first named.

Dr. Beadle, of Ontario, said a friend thinks the Golden Russet more profitable, year after year, than the Roxbury.

Mr. Hoag, of Lockport, said that the Mann apple was profitable in Niagara county. Resembles the Rhode Island Greening, very fine, and as long a keeper as Roxbury Russet.

Mr. Lyon said that they thought much of the Northern Spy in Michigan. As it originated in Western New York would like to hear how it does here.

Mr. Babcock—Does well on some soils, when well cultivated, but is late coming into bearing.

Mr. Lyon, in answer to inquiry, thought highly of Wagener as an amateur fruit; some value it for market. Does well for a few years, when overbearing affects the tree and they cease to be profitable.

Mr. Beadle spoke of Duchess of Oldenburgh as a hardy, productive tree, and fine showy fruit, well adapted to high latitudes, but should be planted with caution for market, as it ripens at the wrong time, in September.

Mr. Cone, of Ontario county, thought highly of Rambo. Comes early into bearing, productive, and in great demand for Pennsylvania market. Do not grow large, but if he were planting 1,000 trees, 100 should be Rambo.

Mr. Harrison, of Ohio—Rambo inferior in size, and inclined to scab.

Dr. Beadle—Before leaving the apple, would inquire if the apple can be grown successfully for market, on a light soil?

Mr. R. M. Barrus thought that there were varieties of apples suited to the different soils—light and heavy. This fact should be borne in mind by all who thought of setting out orchards.

Mr. Jones in riding through sandy regions noticed very fine Spys, even on drifting sands.

Mr. W. C. Barry—It is generally supposed that apples do well on light soils. King of Tompkins county was referred to, some thinking it a very fine apple—others that it was too uncertain a bearer—that it rotted too soon, and that it drops very bad before ripe.

A gentleman remarked that Mr. Yeomans has Kings grafted upon Spys that bear good crops of good keeping apples.

THE MOST PROFITABLE PEARS.

Mr. Babcock named Bartlett, Duchess d' Angouleme, Louise Bonne de Jersey, Beurre d' Anjou, and Buffum. Thought the Bartlett does best as standard on light soils, but as dwarf on heavy.

Mr. Jones named Lawrence, Winter Nellis, Josephine de Malines, as best winter varieties. Vicar of Winkfield does well with some, but not with him. Nurserymen had supposed that the demand for Bartlett trees would diminish, but it had not.

Mr. Thomas said the Winter Nellis was an excellent winter pear, but the fruit should always be thinned. About three-fourths of the fruit should be taken off. Has Nellis trees grafted on Virgalien stocks, that grow up straight. In regard to the Beurre Clairgeau, no pear is more beautiful hanging upon the tree; but it is very difficult to get it ripe before it rots.

Mr. W. C. Barry would commence his list with the Clairgeau. Agrees with Mr. Thomas, but then it shows so well upon the trees, that buyers give it the preference. In addition, named Anjou, Bartlett, Lawrence, Duchesse, and J. de Malines. The latter was a poor grower, but Lawrence good.

Mr. Hoag named Bartlett, Duchesse, Buffum, Lawrence, Nelis, Anjou, and Dix grafted on other stock. Anjou, when it gets age, is a good bearer. Buffum good for picking.

Mr. Jones said some Geneva nurserymen had found Buffum good for canning.

Mr. Barry, Jr.—Buffum can not be sold in Rochester.

Mr. Graves, the chairman, said that he found Beurre Bosc very profitable, but should be worked, standard high, on other pears.

Mr. Thomas said Downing put Bosc at head of the list for market. Howell was also a good pear.

Dr. Beadle spoke highly of Bosc. It sells for the highest price. Thinned, so that the pears do not touch one another upon the tree, grows fair.

Mr. W. B. Smith, of Syracuse, would like to hear more of Anjou's bearing. It is a very fine pear, and he thinks with age, will be productive. If he could have but one pear for family, it would be Anjou.

Mr. Shanley, of Greece, saw it bearing beside Duchesse, and thought the trees quite as full. Brought the highest price of any pears sold in this city last season, namely: \$18 per barrel.

Mr. Atwood, of Geneva—Bartletts, kept after their season, brought \$30 per barrel.

Mr. Maxwell had heard that a fruit-grower of Richmond had received \$40 per barrel for Bartletts got early in the New York market.

THE MOST PROFITABLE PEACHES.

Mr. Lyon—Peaches are successfully cultivated along the shores of Lake Michigan. One of the leading varieties there is what they called Early Barnard, but doubts whether it is the same known in this State by that name. There are several seedlings called Barnard. Thinks that variety reproduces itself from pits. Next to this, Early Crawford, Smock Free and Old Mixon are valued.

Mr. Law resides at South Haven, Michigan, in the peach growing region of that State. Mr. Dyckman is one of the largest peach growers of that State. He had some 15,000 baskets last season, which netted him \$1.10 per peck

basket. His peaches have acquired a high reputation because they are very large and fine on top, and the same all the way through. He raises large peaches in consequence of his system of thinning. He expended 200 days' labor in thinning his fruit. Cultivates his orchard up to the first of August. They rely less on early than late peaches, getting better prices in Chicago after peaches from Southern Illinois are out of market.

Mr. Harrison, of Ohio, named Early Barnard and Early Crawford.

Mr. Thomas, in answer to an inquiry, said there were two peaches called Honest John—the Early York, a white fleshed peach, and a yellow fleshed.

Mr. Barrus said that the Mountain Rose is becoming quite popular in New Jersey. It has a white skin, nearly covered with red; a white flesh; large, productive, ripening about the time of Early York.

THE MOST PROFITABLE CHERRIES.

Mr. Hoag preferred the American Heart. Thought it better than Black Tartarian, and more profitable than the white varieties because of their liability to rot.

Mr. Le Valley, of Niagara county, raised a variety called American Heart, which was a very poor cherry; thought it must be different from Mr. Hoag's. He has Coe's Transparent, Black Eagle, Tartarian, Napoleon Bigarreau and Yellow Spanish. He never picks his cherries until fully ripe. If picked before, the least bruise will spot them, and hasten their decay. He picks in market baskets, holding about twenty pounds, rejecting all imperfect ones; covers with cloth, and ships to New York. His cherries reach that market in good condition, selling as high as fifteen cents a pound, when others were but three and one-half cents. Thinks the mistake generally made is in picking before ripe, when every wounded one rots. Delights to see robins revel on his cherries, and considers it best to leave two or three trees of earliest for them.

THE MOST PROFITABLE GRAPES.

Mr. Lyon—The Delaware stands at the head of the list in Michigan. Concord stands next for profit. It sells for less, and in some parts is less productive than the Delaware. Iona stands high for quality, but only ripens in favorable localities. Grapes flourish along the shore of Lake Michigan as high as the forty-fifth degree, where they have no spring nor autumn. The ground is covered with snow, so that there is no frost in it through the winter. They can gather their grapes and keep them at low temperature all winter. Hartford is their first ripe grape. Wilder and some other of Rogers' do well in some parts. They cover their vines, even along the lake shore, believing that it increases their yield.

Mr. Babcock—Wilder is more productive than Concord, and, being less tender, bears shipping better. Iona not reliable in Western New York. Is a weak grower, and will not ripen. A Vine Valley grower told him that they were plowing it up in that favored locality. We all know that Delaware is good, but does not cover a long enough season. Salem is meeting their expectations, Eumelan, Walter, Israella failing.

Mr. Hoag has fruited Wilder a number of years. Has had bunches weighing a pound each. Concord cracks. Hartford and Perkins most profitable.

Mr. Harrison said Wilder has done well with him, but Salem has not.

Mr. Babcock—Salem wants good dry soil, and plenty of room, improving with age. Had borne five years, and the last was the best.



THE MAGNOLIA SOULANGEANA.

This is a beautiful variety of the Magnolia tree, and has a white and purple flower ; very fine ; April and May.

ELLWANGER & BARRY,
Rochester, N. Y.

Mr. Craine, of Lockport, gets more money from Delaware than any other variety. Salem best of Rogers' reds. 39 best of his blacks, better than Wilder, the latter deteriorating with age. Would plant 39 and Salem.

Mr. Harrison had grafted Iona, and found that it improved for a while, and then failed again.

Mr. Farley—Ionia grafted on free stocks had produced well for four or five years, and then deteriorated.

Mr. Smith, of Syracuse, had raised the Onondaga a few years, and was trying to get a stock of plants. Birds trouble it very much, preferring it to Delaware. Ripens with Delaware, being a cross of it with Diana; size of the latter; tough skin, keeping well.

At 10 o'clock the meeting adjourned until half-past nine o'clock the next morning.

SECOND DAYS SESSION.

MOST PROFITABLE VARIETIES OF PEACHES.

Mr. Quinby spoke of Hale's Early variety of peaches, which was introduced with great ado. His experience was very unfavorable. The testimony of peach growers was also unsatisfactory. It is a slightly cling-stone peach.

Dr. Sylvester said it was so much earlier than other peaches, that although half decayed, the balance would sell above all other peaches.

Mr. Barry—The Early Beatrice Peach is said to be very promising in the vicinity of Richmond, Va. Had no doubt of its being an acquisition.

MOST PROFITABLE BLACKBERRY.

Mr. Jones, Rochester, found but little difference in profit between Lawton and Kittatinny, where both passed the winter unharmed, but ordinarily, taking one year with another, preferred Kittatinny.

MOST PROFITABLE CURRANTS.

Mr. Ellwanger named Cherry and White Grape. A discussion ensued as to whether Cherry and Versailles are identical.

Mr. Maxwell received Cherry from Europe and Versailles from Hon. M. P. Wilder. Thought the latter sweeter, and a longer bunch. Charles Downing had no doubt of their being distinct.

Mr. Barry believed them to be distinct.

Dr. Sylvester had found, upon close comparison, a slight difference in foliage.

Mr. Hooker thought the difference between Versailles and Cherry so slight that but few would recognize it. He thought that for market about one-fourth white and three-fourths red would be a proper proportion to raise. The fact that the red is more acid than the white is not objectionable, as acidity is just the quality we desire in currants.

Mr. Jones has found that currants pay better than almost any other small fruits. If going to plant but one species it would be currants. Cherry and White Grape most profitable.

Dr. Sylvester would add the Black Naples. Finds as much money in it in

the New York market as any other. Gets from 12c. to 14c. a pound. It is very firm, carrying well, and there are not enough to supply the demand. It should not be confounded with Black English, the bunch being larger, longer, and the currant of different flavor. The currant worm had never attacked it. [We would here say that a neighbor's Black Naples have been attacked and destroyed for two seasons, by a worm more voracious and offensive than the ordinary currant worm. If it makes its appearance another season, we will endeavor to submit it to examination of entomologists.—Secretary.]

Mr. Barry would agree with Mr. Jones as to the profitableness of the currant. The ravages of the currant worm had caused a scarcity, so that the demand is greater than the supply. For family use would add Victoria and Albert. The red varieties are more in demand than the white, but for table would prefer the White Grape.

MOST PROFITABLE RASPBERRY.

Mr. Hooker has fruited Herstine—bears well, but too soft for market. Downing—Too soft for market. Jones—Too soft, not superior to old sorts. Sylvester has fruited it, and found it in no wise superior to Clark.

Messrs. Downing, Beadle, and Jones, were satisfied that there is no difference between Naomi and Franconia.

Mr. Jones spoke of Ganargua. Believed it to be a hybrid between common red and black. Good, large, firm, and very productive.

Mr. Thomas has fruited it, acknowledges its merits, but does not believe it to be a hybrid.

Dr. Beadle said that Saunders, of Ontario, has produced hybrids between the red and black, foliage resembling Antwerps, cane like purple cane.

Mr. Hoag said Arnold, of Ontario, has produced hybrids.

Mr. Downing said Rivers, of England, has produced hybrids between red and black.

Mr. Barry said Rivers has produced wonderful results in hybridizing the different species of grapes, raspberries, and also the apple and crab.

MOST PROFITABLE STRAWBERRIES.

Several named Wilson's Albany as the most profitable, and we think the assertion was not questioned. One or two spoke favorably of Jucunda. Mr. Downing said Seth Borden did well in his vicinity.

Not being a disposition manifested to say much about strawberries, the seventh question was discussed :

PRUNING TREES AT TIME OF TRANSPLANTING—INCLUDING EVERGREENS.

Mr. Smith thought that deciduous trees should be pruned at transplanting, but evergreens not.

Mr. Maxwell agreed with Mr. Smith. Would trim the evergreens second year.

Mr. Graves would not prune deciduous trees at transplanting, but would wait until the next year. Trees will make more roots the first year if not pruned.

Mr. Ellwanger thought the tops should be made to correspond with the roots. So few of the roots are retained in digging that the top needs to be pruned down pretty well to correspond.

Mr. Hooker thinks there is evidence in favor of Mr. Grave's theory. His experience shows that stock transplanted in nursery without pruning makes a

better growth. The leaves would start, and the weaker ones would die. Next year the leading ones make a good growth, while the weaker ones could be cut out and the trees would make better tops.

Dr. Sylvester—In planting out trees for an orchard, should prune severely. In 1852 set out 1,100 trees—pruned, and lost but five. Thought Maxwell right about evergreens, and Hooker right about nursery stock. The latter were generally moved late, after sap started, and should not be pruned.

Mr. Thomas thinks it quite important that pruning should be done before the buds start. Peaches will bear pruning better than cherries, but the latter, if set quite early, made a better growth pruned. He furnished a neighbor 1,700 cherry trees, which were pruned, set early, and all lived but five.

Mr. Hooker objects to pruning evergreens much. The yards in this city had been disgraced by pruning evergreens into any shape but nature's.

Mr. Maxwell agreed in condemning pruning out of shape, but it is sometimes necessary to prune to get them into good shape. Golden evergreens can only be made beautiful by pruning. The young growth gives the golden hue.

Mr. Barry has transplanted Norway Spruces after they had made a few inches of new growth, and found it beneficial to cut back part of new growth. Does not object to pruning Norways when necessary to reduce to shape. Would trim Norways whenever convenient.

Mr. Root—The latter part of June the best time to prune Norways, before they stop growing, so that they will throw out terminal buds. White Pine may be trimmed the same time, so that they will throw out the whorls nearer together, forming more compact heads.

Mr. Hooker—The use of Norways in cemeteries and small lots has led to the mutilations of which he complained. Should have small trees, such as Junipers, Arbor Vitæ, and small pines, for such purposes.

BEST EVERGREENS FOR HEDGES, SCREENS AND BELTS.

Mr. Harrison named Norway Spruce, Hemlock, and Arbor Vitæ.

Mr. Barry named White Pine for sandy soils.

Mr. Jones said the finest hedge he ever saw was White Pine.

Mr. Smith would name Norway Spruce for wind breakers.

Mr. Foot—Must consult soil. Hemlock does not succeed on sand, but White Pine does.

THE BEST DECIDUOUS HEDGE PLANT.

Messrs. Maxwell, Barry, Ellwanger, and Graves, all agreed in naming the Honey Locust as the best.

Mr. Downing has seen old hedges of it a complete failure.

Mr. Smith has a Honey Locust hedge about 100 rods long, which has stood sixteen years, and is nearly perfect. Never knew a plant to die from effects of insects. Honey Locust is the only deciduous hedge he would recommend.

Mr. Graves knew a Honey Locust hedge, from fifteen to twenty years old, the most perfect hedge he ever saw.

Dr. Beadle considered it a nuisance, so small portion of the year in leaf, and if a root was broken would sprout.

Mr. Smith had never known them to sprout. It was agreed that Osage Orange would winter-kill, even when several inches in diameter.

Mr. Barry has seen very fine hedges of Japan Quince.

Mr. Hooker—Probably only objection slow growth.



THE OAK LEAVED MOUNTAIN ASH.

The European Mountain Ash is a fine hardy tree ; head dense and regular, covered from July till winter with great clusters of bright scarlet berries.

The American Mountain Ash is a tree of coarser growth and foliage than the European, and larger and lighter colored berries.

The Oak Leaved Mountain Ash (see cut) is a variety with large, lobed leaves, distinct and fine.

ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

Mr. Downing said the Berberry, as far as tested, was a promising hedge plant, but more time was needed to decide fully.

Dr. Beadle—Mice will not eat it.

Dr. Sylvester had one five or six years old, and was satisfied it would make a good hedge.

BEST TIME FOR PLANTING FRUIT AND ORNAMENTAL TREES, SHRUBS, AND
EVERGREENS.

Mr. Smith would transplant Norways in May or August, but September is too late. Has transplanted trees from eight inches to a very large size in August, and hardly lost a tree. Would not transplant Hemlock or Arbor Vitæ in July or August.

Mr. Smith, of Geneva, thought early in May the best time for transplanting evergreens. The quicker they start into growth after transplanting the better, and they will do that early in May. If August is wet, may transplant them with success.

Mr. Barry agreed with Mr. Smith that the best time is when they will remain dormant but a short time after transplanting.

WOOD FOR MANUFACTURING PAPER.

Mr. Barry explained that a manufactory of pulp of paper had been started in Rochester. They use poplar, but he did not know what variety. Use pieces from four to six inches in diameter. If farmers could employ their waste lands in growing such wood, it might be well.

Mr. Jones visited the factory to see what they use. They have a patent which controls all manufacturing of the kind. Wood works up with less waste than any other paper material. One-fourth of the wood pulp is used to three-quarters of other material. Rags lose one-half in manufacturing; a ton of straw makes 800 pounds of paper, while a ton of wood makes a ton of pulp. Basswood works up well, but the pulp discolors. White Poplar is best wood, but must be cut and used green.

Mr. Law said, in Wisconsin they use the common poplar, which is good for nothing else, and grows on poor, waste land.

Mr. Craine moved that the next annual meeting be held in Rochester, which motion was carried unanimously.

Mr. Barry expressed his satisfaction at the attendance and interest manifested in the meeting, and his thanks to delegates from Michigan, Ohio, and Ontario.

Dr. Dunham—The Ohio Society is disposed to receive delegates from other States, but have never seen any from this Society. Would be glad to have delegates to their next meeting.

Mr. Barry assured him that delegates should be appointed.

The meeting then adjourned.

EVERGREENS, NOVELTIES, AND DWARFS.

REPORT OF T. C. MAXWELL, OF GENEVA.

Probably never before was there a time when so many intelligent men were so deeply interested in the cultivation and development of ornamental trees and plants,—when this interest was so wide spread,—when so many men were looking for “Sports of Nature,” and striving by the best modes of culture to produce such novelties as will interest the great army of nurserymen and the immensely greater number of amateurs, and it is the opinion of the writer that all who have, or will give this subject unprejudiced thought, will concede that these efforts are not without reasonable and encouraging results,—the horticultural world moves.

It is true that some of these new things at first appear to some as deformities, unsightly and unworthy of a place in good collections, and so are hastily condemned, yet when we become acquainted with their peculiarities and see them used by men of skill and taste we can but see that they will add greatly to the interest and beauty of the picture we make about our dwellings and in our parks and cemeteries.

On Mt. Honnis, Fishkill on the Hudson, is found a sport from our well known Hemlock. The species we all know is remarkably graceful and beautiful, lofty and grand, but this sport grows down as persistently as the Kilmarnock Willow,—a real deformity, and yet on Mr. Sargent’s lawn it is one of the most interesting and ornamental plants in his entire collection,—“a thing of beauty,” with which scarcely another tree or plant on these most beautiful grounds or in all the land can compare.

In England, a nurseryman is sending out a Juniper, “hardy as an oak,” of a beautiful golden yellow through and through. He says “we may a few years hence hope to see our lawns and pleasure grounds adorned with *pyramids of gold*,” and we are told that in France is found a Birch with leaves as purple as the Purple Beech, and we hear in one direction of a *Dwarf Weeping Spruce*, and in another of an upright larch, and in another of a variegated spruce, and a Golden Arbor Vitæ, and of various other sports, some of which we can but hope will prove valuable acquisitions. The numerous variations in form of growth, shape and color of leaf, are adding largely to our list of choice valuable trees and plants for ornament.

We are getting variegations of leaf, yellow and white, in nearly all our ornamental trees and shrubs, both evergreen and deciduous, and a few cases of tri-colors. Some of these sports are very beautiful, and yet they appear to many persons who only give them a passing glance, as sickly specimens, only fit to be thrown away, and in this careless way, no doubt, many valuable things have been lost, but the time has come when any thing remarkable in shape of tree, shape or color of foliage, should have a careful trial, and if found worthy, propagated and disseminated.

The word “evergreen” in many minds is so associated with the green of our old Balsam, Fir, and Norway Spruce, that they will scarcely accept as an evergreen any variation from the color of these well-known trees, but if they will examine the best catalogues of this country as well as Europe, or what is worth a hundred times more, examine a good collection of trees and plants, they will be interested to notice the many beautiful hues of green evergreens, the white

evergreens, some spotted with white foliage all through the plant, and others white only on the ends of the branches,—the blue or glaucous evergreens, some of which are exceedingly beautiful,—the yellow evergreens, some yellow all through the tree, and others only on the ends of the branchlets of the current year's growth, and in some varieties this yellow and white foliage is sound and hardy,—the white will probably prove more liable to burn in the summer than the yellow. Perhaps it will not be out of place right here to say, that I think the best way to bring out the greatest beauty in these variegated evergreens is to give them a good place where they will make a reasonable growth every year, and then *clip* them in regularly, so as to get a full supply of new branchlets all over the plant, just where we want them.

In this country where we see so many small sized yards and lawns—so many containing less than an acre of ground, I think our best dwarf evergreens are worthy of a thousand times more attention than they have heretofore received. It seems but a very few days since I planted near my front door a beautiful Austrian Pine,—it was very beautiful, and though some distance from the street, many times we have seen people stop and look at it, and come into the yard and walk around it, but now it is so large it obstructs the view, detracts from the appearance of my house, looks out of place and must be cut down. If I had planted a handsome Dwarf instead, and placed the Pine some distance from the house, I might have saved the tree, and added largely to the beauty of my place.

We do not want our houses overgrown with trees,—we must have the sunshine about them. Neither do we want large trees only standing about us as so many stiff sentinels. The beauty of many a nice little home is spoiled by large trees. It is the opinion of the writer that we should plant our larger trees some distance from the house, if possible,—on small places near the outskirts of the lot, and then how beautiful and effective the dwarfs inside, and then the open clean lawn, in the whole plan using care to produce variety without regularity. For groups near walks and drives, and near the edge of the lawn, nothing can be more interesting or effective than these fancy and dwarf evergreens. It is an encouraging fact that, in different parts of our country may be found men of wealth and taste, who are collecting on their own private grounds all the varieties of evergreens that can be found, and so well are they pleased with their efforts and specimens, that others are following the example.

The list of fancy and dwarf evergreens is a very interesting one, and contains a good variety of form and color, and gives the planter a wide range for selection in forming his combinations and contrasts.

I will name a few of the choice, hardy sorts, beginning with the old neglected, but best of all the Spruces, the

Abies Alba—The White Spruce makes a medium sized tree, is moderate in its annual growth, and has the most beautiful silvery grey foliage and a compact conical form. It is a tree that will inspire new love and admiration every year. The Black Spruce, sometimes sold for the White, is unworthy of cultivation as an ornamental tree.

Abies Alba Glauca—This variety of our White Spruce has very marked silvery glaucous foliage,—makes a small tree and is exceedingly beautiful,—a perfect gem.

Abies Excelsa Conica—A very handsome dwarf,—erect, compact and regular in form,—a very neat, cheerful little Spruce.



CUT LEAVED WEEPING BIRCH.

This belongs to that interesting class of ornamental trees known as weeping or drooping deciduous trees. The Cut Leaved Weeping Birch is an elegant erect tree, with slender drooping branches and delicately cut leaves.

ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

Abies Excelsa Pyramidalis—As its name indicates, this is a beautiful dwarf pyramid.

Abies Excelsa Parviformis—This Spruce is quite dwarf in its habit, and has its branches more horizontal than *Conica*,—is exceedingly slow in growth and is one of the most interesting of its class.

Abies Excelsa Pumila—A very dwarf variety, seldom growing above two feet high, with dark foliage and with distinct bushes and close habit.

Abies Excelsa Pigmea—This is a very small dwarf, only growing one foot high,—quite curious.

Abies Excelsa Pendula—The branches of this variety are as pendent as those of the Kilmarnock Willow,—with a little care in training it makes an interesting, elegant tree.

Abies Canadensis Nana—This is a very dwarf variety of our common Hemlock, and is compact and beautiful.

Picea Pichta—This Siberian Silver Fir is a medium sized tree, thick with rich dark foliage, which it does not lose like our Balsam Fir, and is “hardy as an oak.” One of the best.

Picea Hudsonica—The Hudson Bay Silver Fir is a very dwarf and interesting variety, growing only about three feet high,—one of the best dwarfs.

Picea Pectinata Pendula—A weeping variety of the European Silver Fir,—with a little care in training it is very ornamental.

Pinus Cembra—This Pine is of slow growth; makes a handsome conical small tree; erect and regularly branched, and has three-ribbed leaves, green and white, giving it a beautiful plume-like appearance; it is worthy of a place in the best collections.

Pinus Mugho—A small shrub, with numerous branches and short leaves, forming a dense mass of wood and foliage and perfectly hardy. These two pines are not new, of course, but I think worthy of more attention.

Juniperus Sinensis—The Chinese Juniper is but little known in this country, many nurserymen even being unacquainted with it; it is perfectly hardy. If it stands in a rich place and is inclined to grow too fast and loose, it should be pinched, when it will make a compact, conical shrub, bright and beautiful,—one of the most ornamental in attraction.

Juniperus Sinensis Variegata—This is like the preceding, except its beautiful green is interspersed with the branchlets of white.

Juniperus Japonica Aurea—This is a close-growing fine-leaved variety, with the top of the plant beautifully golden; very attractive in the summer, but browns somewhat with the frosts of autumn and winter.

Juniperus Sabina Variegata—This variety of the Savin Juniper has foliage spotted with white and yellow, and is distinct and hardy.

Juniperus Virginiana Glauca—The light glaucous color of this tree is very pleasing and ornamental. If you wish for a dense dwarf specimen, clip in the tops of the branches.

Juniperus Virginiana Variegata—This is another variety of the Red Cedar, with the foliage distinctly marked with yellow,—perfectly hardy.

Juniperus Virginiana Pendula—The Weeping Red Cedar, has graceful, drooping, slender branchlets, and is a desirable addition to our Weeping Evergreens.

In the long list of *Arbor Vitæ*s, we have some few very handsome dwarfs. They brown some in the winter, it is true, but is it not pleasant to see them *brighten up* in the spring? You sometimes get on a long, sad face, but before your true friends condemn you, cheerfulness comes again.

Thuja Dumosa—A real Dwarf Arbor Vitæ, growing only about three feet high, with short flat branchlets, of a peculiarly beautiful green in the summer; browns in winter.

Thuja Cristata—A dwarf, compact, curious novelty,—a really interesting addition to this class of Dwarf Arbor Vitæ.

Thuja Nana—(*Hooper's Dwarf*)—This beautiful dwarf originated with the distinguished nurseryman whose name it bears. It is very compact and bright,—one of the best.

Thuja Vervaeana—A very pretty and distinct variety, with slender branches and a beautiful golden color.

Thuja Pendula—The Weeping Arbor Vitæ, like all the weeping evergreens, needs a little care and skill in its management, when it makes a very satisfactory appearance.

Thuja Pyramidalis—This variety is remarkably upright and compact, forming a slender pillar of green; it is quite desirable and attractive.

Taxus Adpressa Stricta—This is another erect, compact evergreen; has dark, glossy, green leaves, and is without doubt one of the most hardy of its species.

Taxus Canadensis Variegata—This is a variety of our American Yew, with foliage handsomely striped with yellow. With a little annual clipping, it will form a very compact bush, and present a very cheerful appearance.

Taxus Washingtonii—Of this plant, Messrs. Hoopes Brothers & Thomas say, "A rare novelty, of quite vigorous growth, very beautifully variegated, with deep golden yellow spots and stripes." I am very much pleased with the small plants we received about a year ago.

Some of the *Biotas* and *Retinosporas* are wonderfully beautiful, but the fear that they are not sufficiently hardy deters me from any definite description.

Those who are interested in evergreens, and can afford it, should give the best of them a trial, protecting with evergreen boughs during winter. Some of the sorts may prove valuable.

T. C. MAXWELL.

REPORT ON ORNAMENTAL TREES AND SHRUBS.

Mr. George Ellwanger presented the following report of the Committee on Ornamental Trees and Shrubs:

In presenting the annual report of new and rare ornamental trees, shrubs, etc., and also of those varieties better known and entitled to more than ordinary consideration on account of their particular adaptability in rendering our homes cheerful and pleasant, and our country more beautiful and inviting, we wish especially to direct attention to what is, unfortunately, too much neglected,—the planting of ornamental trees and shrubs, a thing within easy access of all, even the most humble; and whose benefits are shared, not only by the present, but also by the generation to come.

A home is hardly a home, despite the many attractions that may be within, unless something without, with its cheerful presence, serves to add to its attractiveness as well,—from the rose bush or flowering shrub, distilling incense from each opening bud; the *Virgin's Bower* or ivy vine, that weave their intricate net-work around the porch, to the shade tree that offers its leafy umbrage to the passer-by, or the evergreen that, even in winter, suggests warmth and bids defiance to the chilling blast.

Trees are without, what pictures and works of art are within. They clothe

nakedness; they relieve the eye; they are a never-ceasing well-spring of pleasure that but endears itself as age sets his footprint on the decaying branch and withering bough.

Who, in the recollections of his early home, were he fortunate enough to have passed his younger days surrounded by sylvan charms, has them not impressed upon him all the more vividly from the associations that old trees carry with them? Apart from the infinite variety of form, size, and shape assumed by trees, their variance is none the less striking in their manner of fruitage, their dissimilarity in habit, and their diversity in colors of foliage.

Nor must we forget the exquisite tints and gorgeous apparel that clothes our trees in autumn,—their annual tribute to the passing year, as well as the effect produced by the different colored berries and bark of many of our trees and shrubs in the winter, such as the *Prinus* (the Flamingo of the Swamps), the *Viburnum Oxyococcus*, the family of the *Euonymus*, the different varieties of the Berberry, the coral-colored berries of the Mountain Ashes, the amber-hued rind of the Golden Willow, the lustrous red bark of the Dog-Wood, and the silvery sheen of the Birch. With all these means at his command, it becomes, so to speak, an easy task for one imbued with a love for the beautiful, as manifested in these,—Nature's most varied specimens of handiwork,—to produce, with a little judicious attention, almost any desired effect in landscape gardening; and by the planting of but a few trees and shrubs to give an entirely new aspect to one's surroundings.

On the other hand, while trees serve so materially to beautify and embellish, they offer incentives equally as great in a pecuniary point of view to those who will incur the trifling labor and expense that attend their planting and early care.

The man who has surrounded his home with these objects of refinement and beauty reaps his own reward, not only in the individual gratification which can not fail to ensue therefrom, but equally as well in the advanced value that always accompanies this small labor and outlay.

While we do not wish to savor of egotism, and while we acknowledge its many short-comings, we would call attention to our own fair city of Rochester, and ask what renders it so attractive to the stranger who enters its leafy precincts? Walk down its shaded streets, its closely planted avenues, pause before its spacious and well-cultivated yards that surround so many of the houses of both rich and poor, and the reason is at once manifest.

Walk along the leafy avenues of New Haven, where the pride of our forests,—the American Elm,—waves its lissom branches in many a graceful curve over the passer-by; and grateful for the welcoming shade, one instinctively murmurs a benediction on the providence of those whose seed sown, now brings forth its fruits a thousand fold.

We will here take occasion to call attention to the effect that may be produced by a proper assortment, either planted singly or in groups, of those varieties which present so great a diversity in the color of their foliage or flowers. With, for instance, a bed of *Magnolias* (the light flowering Chinese), or the Scarlet Japan Quince in the foreground, what an array of color can be formed with a background of *Forsythias* in their yellow dress, or a group of *Judas* trees in the full glory of their pink habiliments.

And a little later in the season what contrasts can be made by a proper placing of the different colored Hawthorns, the *Philadelphus*, the *Magnolia Soulangeana*, the many colored Lilacs, and the hosts of other flowering Shrubs.



PRUNUS TRILOBA.

A highly interesting and desirable addition to hardy shrubs; flowers semi-double, of a delicate pink, upwards of an inch in diameter, thickly set on the long slender branches; native of China; hardy.

ELLWANGER & BARRY,
Mt. Hope Nurseries, Rochester, N. Y.

Then the white-leaved Linden, the *Virgilia Lutea*, the Birches, the *Chionanthus Virginica*, the Snowball, and the many other light barked and white foliated or white flowering trees adapt themselves wonderfully in contrasting with and heightening the effect of the numerous red flowering and darker foliated trees.

These deciduous trees and shrubs fulfill well their mission during the spring, summer, and early autumn, but in winter, if we would have an eye to the picturesque in color, we must call into requisition the well-filled category of deciduous trees and shrubs, of which some have already been enumerated, that distinguish themselves for the heightened color of their bark, or the brightness of their berries; or what is still more beautiful, when frosts and snows surround us, the varied and numerous brilliantly-foliated evergreens, which retain their tints when everything else in nature has shed its leaves or has become browned and seared by the colder temperature.

The *Yew Elegantissima*, the varieties of the new golden Arbor Vitæ, such as the *Semper Aurea*, Peabody, etc., etc.; the different varieties of the silver-foliated evergreens, like the *Juniperus Venusta* and *Virginica Glauca*, with the darker foliated Conifères interspersed here and there to form the contrast, can be made, if placed with an artistic eye, to shed sunshine on the wintry landscape, and envelop it with a mantle of cheerfulness and warmth.

It is gratifying to observe the improvements that have taken place within the past few years in the planting and subsequent cultivation of fruit trees. If we will take the trouble to observe, we will find, that as this branch of rural improvement is developed, refinement, intelligence, happiness and prosperity are its invariable results.

Equally, it not in a more measurable degree, does this hold good with the planting of ornamental trees and shrubs.

Then, let us each and all do our part; and let every one who has a place or yard, however small, plant it with some of the many beautiful trees and shrubs that he can select from, thus contributing to his own comfort and happiness, improving the taste of those around him, and administering to the welfare of all.

GEORGE ELLWANGER, *Chairman*.

I append herewith a list of new and rare ornamental trees and shrubs:

NEW AND RARE DECIDUOUS TREES.

Acacia Viscosa Bella Rosea—Flowers delicate flesh-colored, fringed with yellow; fine dark foliage, and vigorous grower. A very desirable variety.

Alnus Firma—A thrifty, medium-sized tree from Japan; foliage resembling a Morello Cherry—very distinct.

Alnus Incana Laciniata—A very choice, beautiful variety; leaves deeply cut.

Alnus Japonica—A very distinct Japanese variety with cherry-like foliage.

Pyrus Malus Carnea Pleno—A beautiful variety with flesh-colored double flowers.

Fagus Quercifolia—Resembles the fern-leaved; distinct cut foliage; a dwarf grower.

Æsculus Heterophylla Dissecta—Leaves deeply and finely cut; a very novel and attractive variety.

Æsculus Memmingerii—Beautiful white spotted foliage, curious and ornamental.

Tilia, red fern-leaved—Foliage deeply cut, the bark on young growth rose-colored.



THE AMERICAN ARBOR VITÆ.

This is a hardy handsome bush or low tree, well adapted for hedges and screens. In most parts of the West no Evergreen trees are to be seen in the forests or by the roadside, hence there is more occasion for planting them in gardens and door yards, to relieve the monotony of landscapes in winter, and for the same reason Evergreens are regarded as imparting more of an air of taste and refinement to a residence than other species of trees and shrubbery.

N. & C. CHILSON,
Marshall St. Nursery, Battle Creek, Mich.

Acer, Wier's cut-leaved—A rapid grower; shoots slender and drooping; in habit about as graceful as the cut-leaved birch. The foliage is abundant, silvery underneath, deeply and delicately cut. The leaf stalks are long and tinted with red on the upper surface. We believe it will rank among the most interesting lawn trees, and may be easily adapted to small places by an occasional cutting back, which it will bear to any degree as well as a willow.

Quercus pedunculata lacinata—An elegant tree; foliage deeply cut; one of the best cut-leaved trees.

NEW AND RARE EVERGREENS.

Biota Semper Aurea—A new variety of the Aurea, which retains its golden tint the year round. So far it has proved hardy with us. A desirable acquisition.

Juniperus oblonga pendula—A native of Japan, of drooping habit; distinct and ornamental.

Juniperus Chinensis Aurea (Young's Golden Juniper)—This is no doubt the most distinct and beautiful of all the Yellow or Golden Conifers; a vigorous grower.

Juniperus Venusta—Foliage of a beautiful glaucous green color; erect and rapid grower. This is one of the handsomest Junipers we have seen.

NEW AND RARE DECIDUOUS SHRUBS.

Deutzia Crenata fl. alba plena—A very fine profuse flowering shrub; flowers pure white, fine, and distinct.

Hydrangea Japonica Alba—A charming shrub; flower of delicate rose-color, changing to white.

Hydrangea Japonica Macrocephala—Very large individual flowers; petals white, returning to rose as they acquire age.

Hydrangea Otaksa—Foliage of a beautiful deep green. The plant produces immense trusses of rose-colored flowers in profusion; free bloomer.

Lilac Alba Grandiflora—Very large pure white trusses. The finest white lilac.

Lilac Cœrulea Superba—Flowers light purple in bud, but when fully open a clear blue; truss very large. The finest of its color in cultivation.

Lilac Ville de Troyes—Dark purple; large panicle; fine.

Spiræa Fontenaysii—Vigorous and free bloomer; large panicles of white flowers.

Weigela Gustave Mallet—Red flowers; very showy; free bloomers.

The chair remarked that these reports were very valuable, and if preserved, as they would be, would have a great permanent interest and importance.

SELECT LIST OF DECIDUOUS ORNAMENTAL TREES FOR SMALL PLACES.

Alder Imperial.	Kolreuteria Paniculata.
Beech, purple (River's smooth-leaved).	Judas Tree.
Beech, fern-leaved.	Laburnum, English.
Elm, Blandford.	Magnolia conspicua.
Elm, purple-leaved.	Magnolia speciosa.
Elm, serrated-leaved.	Magnolia soulangeana (see cut
Linden, red-twisted.	page 409).
Linden, white-leaved (see cut page 401).	Magnolia norbertiana.



THE KILMARNOCK WEEPING WILLOW.

This is an exceedingly graceful tree, with large glossy leaves ; one of the finest of this class of trees ; very hardy.

N. & C. CHILSON,
Marshall St. Nursery, Battle Creek, Mich.

LIST OF DECIDUOUS ORNAMENTAL TREES FOR SMALL PLACES—*Continued.*

Acacia Bessoniana.	Magnolia tripetela.
Ash, aucuba-leaved.	Mountain Ash, oak-leaved (see cut page 413).
Cherry, large double, flowering.	Peach, double white.
Horse Chestnut, double, white.	Peach, double crimson.
Horse Chestnut, red-flowering.	Sweet Gum.
Maple, purple-leaved (see cut page 405).	Thorn, double white.
Maple, Norway.	Thorn, double scarlet.
Oak, pyramidal.	Thorn, Paul's new double scarlet
Oak, scarlet.	Willow, rosemary-leaved.
Virgilia Lutea.	
Apple, double white-flowering.	

SELECT LIST OF WEeping DECIDUOUS TREES.

Ash, European, weeping.	Elm, rough-leaved.
Beech, weeping.	Linden, white-leaved weeping.
Birch, cut-leaved (see cut page 417).	Mountain Ash, weeping.
Birch, elegans pendula.	Poplar, grandidentata pendula.
Birch, Young's new weeping.	Willow, American weeping.
Cherry, dwarf weeping.	Willow, Kilmarnock (see cut page 425).
Cypress, glyptostrobos pendula.	
Elm, camperdown.	

SELECT LIST OF FLOWERING SHRUBS.

Althæas, double blue.	Lilac, Glory of Mt. Hope.
Althæas, double variegated.	Prunus triloba (see cut page 421).
Almonds, double pink.	Purple Fringe.
Almonds, double white.	Quince, Japan white.
Calycanthus Floridus.	Quince, Japan scarlet.
Cornus Mascula, variegated.	Spiræa, Reevesii robusta.
Currant, double crimson.	Spiræa, Fortunei.
Deutzia, crenata.	Spiræa, callosa alba.
Deutzia, gracilis.	Viburnum lantanoides.
Filbert, purple-leaved.	Viburnum plicatum.
Forsythia Fortunei.	Syringa, double-flowering.
Forsythia viridissima.	Syringa, pubescens.
Honeysuckle, pink.	Weigela, alba.
Horse Chestnut, dwarf white.	Weigela, Hortensis Nivia.
Hydrangea, paniculata grandiflora.	Weigela, Gustave Mallet.
Lilac, Chinese white.	White Fringe.
Lilac, sanguinea.	

SELECT LIST OF CLIMBING SHRUBS.

Ampelopsis, American Ivy.	Honeysuckles, Hallieana.
Aristolochia Siphoc.	Honeysuckles, monthly fragrant.
Clematis, European sweet-scented.	Honeysuckles, Magnevillea.
Clematis, Azurea grandiflora.	Wistaria, Chinese purple.
Clematis, Jackmanii.	Wistaria, Chinese white.
Clematis, Prince of Wales.	Wistaria, magnifica.
Honeysuckles, Chinese.	Wistaria, frutescens alba.

THE NINE STRAWBERRIES.

HISTORY AND CHARACTERISTICS OF THE NINE STRAWBERRIES RECOMMENDED BY THE STATE POMOLOGICAL SOCIETY.

BY A MICHIGAN STRAWBERRY AMATEUR.

The Society has recommended nine strawberries for culture in this State. Wilson's Albany for market; for family purposes, Wilson's Albany, Charles Downing, Green Prolific, Michigan, Downer's Prolific; for amateur purposes, Downer's Prolific, Michigan, Charles Downing, Agriculturist, Lennig's White, Green Prolific, Kentucky (late), Triomphe de Gand.

In attempting a sketch of the origin, introduction, and characteristics of the strawberries recommended by the Pomological Society, it seems to me most convenient and natural to consider each in the order of its origin or introduction; leaving all questions of precedence on account of season, quality, or productiveness, to be developed in the course of the discussion.

Starting out with this purpose, our attention is first drawn to Wilson's Albany, which constitutes the total of the recommendation for market purposes.

No. 1.—WILSON'S ALBANY.

We find the first published notice of this variety in the *Michigan Farmer* for September, 1857, in a note, saying: "Wherever this strawberry has been cultivated the past season it seems to have done well, and to have given satisfaction as a prolific bearer." In the *Horticulturist* for October, J. Jay Smith, at that time editor, acknowledges the receipt of plants for trial, from the originator, John Wilson, of Albany, New York. It is evident, however, that it had been already considerably disseminated, from the fact that, at a meeting of the Fruit Grower's Society of Western New York, held at Rochester, on June 30th, 1858, a vote was had upon sixteen varieties of strawberries to be proposed for market purposes, in which this variety lacked but a single ballot of standing at the head of the list, its successful competitor being Early Scarlet,—a variety now laid aside and almost forgotten. At the same meeting, a vote was also had upon a list of varieties to be proposed for amateur purposes, in which the highest number of ballots was given to the Hooker,—then new, but now laid aside. In this vote the Wilson stood even with the Hovey, with Burr's New Pine, Early Scarlet, and Hooker, only, in advance of it. In the course of discussion, Mr. Barry, of Rochester, asked Mr. Hooker, the originator and introducer of the Hooker, which he considered the best, the Hooker or the Wilson?—a trying question, certainly, under the circumstances. Mr. Hooker, however, seems to have been adequate to the emergency, replying, the Hooker was, in his estimation, best for amateurs, though the other might be best for market.

During the year 1858 the Wilson seems to have achieved a very extensive notoriety, as a productive and desirable market variety; almost the only objection made to it being its extreme acidity; but against this its eminent hardiness, large size, great productiveness, and the long time it continues in season, pleaded strongly and conclusively for popularity.

The American Pomological Society, at its session held in New York in September, 1858, recommended it for general cultivation.

At Boston, and perhaps a few other places, it seems not to have become very popular. The editor of the Magazine of Horticulture, C. M. Hovey, in particular, seems to have been very persistent in his opposition to it,—an opposition which may be suspected to have derived edge from the consideration that his time-honored protege, the Hovey, was its chief competitor for favor in that locality. In his issue for July, 1860, he says: “Wilson’s Albany has fruited with us this year in fine condition, and has come fully up to our expectations, as one of the sourest, most dirty-colored, and disagreeable flavored of all recently introduced sorts. The chairman of the fruit committee at the Massachusetts Horticultural Society made the very apt remark that it was an excellent sort to make vinegar of. Our excellent correspondent, Dr. Kennicutt, has already informed our readers that he did not like its *elderberry flavor*,—and he was quite correct, for it is medicinal enough. Besides, it is soft, watery, unfit for carriage, has a very large calyx and is hollow at the core; its only good qualities are hardiness and productiveness, which will please anybody. Speaking of these latter qualities to a cultivator, he thought they were no addition, for the more one had of them the worse he was off. Wherever strawberries are grown for the table and not for sale, the Wilson will find few admirers. Since writing the above, we learn that the fruit committee of the Massachusetts Horticultural Society has passed a unanimous vote that the ‘Wilson’s Albany is unworthy of general cultivation.’”

In 1862 a Strawberry Show was held at the office of the American Agriculturist in New York, at which the Wilson carried off the first premium as the best market berry.

In June, 1867, the Western New York Fruit Growers’ Society re-affirmed their conclusion of 1858 by a vote upon the best six varieties for amateur purposes. Twenty-eight ballots were cast, on all of which the Triomphe de Gand appeared, while twenty-two proposed the Wilson.

Like the Bartlett among pears, and the Baldwin among apples, the Wilson seems to possess the capacity of adaptation to a greater variety of soils and climates than almost any other known variety of this fruit; while its superior hardiness and vigor enable it to bear, with comparative impunity, not only the scorching of the sun in summer and the freezing and thawing of winter, but also the varied treatment to which it must of necessity be subjected at the hands of ignorant or thoughtless planters and growers. If in addition to these considerations we allow for its great productiveness, with the size, high coloring and great firmness of the fruit, we can hardly be surprised that almost from its first introduction, it has assumed a leading if not an exclusive position as a market fruit. On account of its superior firmness it seems to be preferred to all others for canning. Although not the earliest it is among the first as well as the last to appear in our markets. This season, 1873, Wilson’s,—home grown,—appeared in our market June 7th; at about the time of the ripening in my grounds of the first specimens of Charles Downing and Green Prolific.

Downing in his revised work on Fruits, speaks of it as follows: "Although not of high quality, because of its superabundance of acid, yet no variety has become so generally cultivated as the Wilson's Albany. The vine is very hardy and vigorous, very productive, commencing to ripen its fruit early and continuing to the latest. Hermaphrodite. Fruit large, broadly conic, pointed. Color, deep crimson. Flesh, crimson, tender, with a brisk acid flavor."

No. 2.—THE TRIOMPHE DE GAND.

This strawberry, originating, as its name indicates, in Belgium, seems to have been introduced into the United States by several of our leading fruit growers; and (perhaps on account of the prevailing impression as to the unproductiveness of foreign varieties) to have been laid aside with but a slight trial. Possibly, however, its subsequent success may be measurably due to the elevation of the standard of culture among us, and the introduction of the system of "hill culture," so indispensable to the success of the European sorts. Be this as it may, we find this variety after a trial of ten or more years in our country only well enough known or appreciated to receive two votes as an amateur fruit and one as a market variety at the June meeting of the Fruit Growers' Society of Western New York in 1858. At the session of the American Pomological Society, held at New York in September, 1858, it was placed on the list of varieties that promise well, although it was charged with lack of productiveness.

In June, 1862, at the strawberry show held at the office of the American Agriculturist, this variety drew the first prize as the best for general (family) cultivation; also the first prize for the best and largest three berries of one variety,—weight three and one-half ounces. It also drew the premium of the Salem (Mass.) Horticultural Society for the best quart of strawberries.

At the strawberry show of the American Agriculturist in 1862, we find the Triomphe De Gand side by side with the Wilson, again carrying off the highest premiums. This variety was again quite fully discussed by the American Pomological Society at its session at Philadelphia in September, 1860, and as its popularity as well as its dissemination is no doubt largely due to the thorough culture and eminent success in consequence, of the late Rev. John Knox, of Pittsburg, Pa., who also disseminated it very widely, it may not be uninteresting to quote his remarks during the discussion, which were as follows: "I have fruited the Triomphe de Gand for three years. Out of one hundred varieties I have under cultivation, I regard it as the very best of them all. I have fifty acres in strawberries, and would be very glad if the whole were changed to Triomphe de Gand. It seems to me there is scarcely an excellence it has not. The plant is hardy and very vigorous, as much as the Wilson. I think the healthiest and most vigorous plants I ever knew on my place are of this variety. The fruit is large and luscious, bright and glossy, attracts attention, and brings the highest price,—from twenty-five to fifty cents per quart. I am not able to supply the demand. From my place at Pittsburg they have been carried to Cincinnati, where they profess to know something about strawberry culture, and they sent back for more at fifty cents per quart. I think the question should not be what mode of culture is *necessary*, but what kind will *pay best*. The mode of culture required by the Triomphe de Gand, and for other foreign varieties, is that which pays better with us than any other. The only mode of culture adopted in Pittsburg is in hills. We place them in rows two and a half feet apart one way and twelve inches the other. It forms quite a number of stools, and bears remarkably well."

During the same discussion Mr. Barry remarked: "The Triomphe de Gand has been tested all over the country, and everywhere the experience has been, that it is a large berry, excellent in flavor, standing the sun well in summer, and enduring the cold of our winter without injury. It is also quite productive."

Again at the session of the same Society at Boston, in September, 1862, this variety was very fully considered. In the course of this discussion Mr. Barry remarked: "We imported the Triomphe de Gand originally from Belgium; we had it for eight or ten years; for a long time we confined it to a small spot, having no faith in foreign varieties." * * * "It is found to possess a greater degree of hardiness and vigor than any other foreign variety, and has attained a greater degree of popularity in our section than any other strawberry." * * * "I don't say that for profit it will come up to some other varieties."

In 1864, at the "Agriculturist's Show," this variety took the first prize as the best market berry, also for the largest three berries,—also a special prize.

At the June meeting of the Western New York Fruit Grower's Society, in 1867, twenty-eight members balloted upon a selection of six varieties for amateur purposes; all the ballots included Triomphe de Gand,—Wilson's Albany standing at twenty-two.

Downing's description characterizes this fruit so fully, as well as justly, that we give his notice, entire, as follows:

"The Triomphe de Gand is a Belgium variety, which appears to stand our climate and produce more crops in more localities than any other foreign sort. The vines are vigorous, hardy, moderately productive, and well suited to strong clayey soils; requires high cultivation, and to be grown in hills. Hermaphrodite.

"Fruit, large, roundish obtuse, sometimes coxcomb-shape, bright, rich red next the calyx, almost greenish white at point, glossy as if varnished; seeds light yellow, brown near the surface. Flesh firm, white, a little hollow at core, juicy, with a peculiar, rich, and agreeable flavor."

No. 3.—DOWNER'S PROLIFIC.

This variety seems to have been first introduced to the public in 1858 by means of the following certificate:

"At the request of J. S. Downer, proprietor of Forest Nursery, near Elkton, Ky., we, the undersigned, met at his house on the 29th day of May, 1858, to examine a seedling strawberry raised by him, and now bearing its third crop of fruit, and after a careful examination of the plants and fruit, and a comparison with a number of the most popular varieties of this fruit under cultivation, such for instance as McAvoy's Superior, Hovey's Seedling, Hooker's Seedling, Burr's New Pine, Myatt's Deptford Pine, Longworth's Prolific, etc., we submit the following report and description:

"Vines remarkably large and vigorous, of a pale green color, resembling Peabody's New Hautboy; fruit stalks long and erect, fruit of the largest size, roundish oval, of a bright scarlet color. Flesh moderately firm, rich, juicy, high-flavored, and excellent. Ripens early, and continues in bearing for a long time. Flowers hermaphrodite.

"We regard the introduction of this strawberry, which we propose to call Downer's Prolific Seedling, as a triumph. Its productiveness surpasses anything that we had ever conceived of in this fruit. We counted upwards of fifty very large, ripe berries upon a single plant, with a great number of unripe ones, in the various stages of development, from the bloom to the perfect berry, and this, perhaps, was not more than an average of the entire bed.

"Some of us have had considerable experience in strawberry culture, and we are unanimously of the opinion that, taking all the qualities of this strawberry into consideration, it is, for this latitude, worth more than every other variety of this fruit with which we are acquainted."

This certificate was signed by six gentlemen, whose high character and standing were certified to, under the seal of the county court, by the clerk of Todd county, Ky.

No special effort seems to have been made to attract public attention to this fruit; hence it was but slowly disseminated, still we hear of it from time to time and almost always favorably. At a strawberry show at Poughkeepsie, N. Y., in June, 1864, it ranked along with *Triomphe de Gand*, *Wilson*, and *Russell*, as best.

In 1866, F. R. Elliot says, in an article contributed to the *Horticulturist*: "We have fruited it for several years, and do not feel that we can do without it, although it is too soft for market purposes. It is a great bearer, carrying its fruit high and clear of the ground. It commences ripening among the very earliest, and holds it until the very last. In quality, unless fully ripe, it is too acid; but when fully ripe it is delicious, and, with a little sugar, makes certainly as good, if not the best mingling of sugar and acid of any of the strawberry family."

From the reports of the West Jersey Fruit Grower's Association in 1866, the Downer's Prolific seems to have stood third on the list of desirable and profitable varieties; and in one or two localities it was even said to yield one-half more than *Wilson*.

Under the head of editorials the following very just and well considered notice of this variety will be found in the issue of the *Horticulturist* for July, 1867: "Comparatively little known, the Downer is nevertheless a variety of considerable value, in its hardiness of vine, great productiveness, almost if not quite equaling the *Wilson*, and in maturing its fruit very early, among the very earliest, and continuing it until the last. Too soft for market, where transportation by cars is necessary, and if picked before fully ripe a little acid, yet in the garden of the amateur, where it can fully ripen, there is hardly any one early sort its superior, all things considered."

Almost upon its first introduction, it fell into the hands of one of the most enthusiastic and successful cultivators at that time in the vicinity of Detroit, and with whom it was eminently successful. Plants obtained of him also proved highly satisfactory in my own grounds. I add Mr. Downing's description—"Raised by J. S. Downer, Kentucky. Hermaphrodite. Plant vigorous, very productive, early. Valuable for near market growing. Fruit medium to large, roundish conical, light clear scarlet. Flesh rather soft, juicy, rich, but a little acid."

No. 4.—LENNIG'S WHITE

seems to have been first prominently noticed at the session of the American Pomological Society held at Boston in the year 1862, where it was introduced for discussion by Wm. R. Prince, of Flushing, Long Island, and, as Lennig's White Pine Apple, he characterized it as follows: "A very large fruit, white, tinged with pink, and extremely delicate. It is the only strawberry to which the epithet buttery can be, with entire propriety, applied. It is thoroughly buttery, and of the most exquisite flavor."

At the Agriculturist's strawberry show in June, 1864, it took the first prize among the white strawberries.

The editor of the Magazine of Horticulture, in January, 1865, in his review of the past year remarks: "Lennig's White has proved a very excellent strawberry, new in color, a good grower, fair size, abundant bearer, and rich in quality." In certain places it has the synonyms, "White Pine Apple" and "Albion White." The following statement of its origin, etc., is extracted from the Gardener's Monthly for October, 1855, written by the editor in answer to the queries of a correspondent: "Lennig's White strawberry was raised by an amateur in Germantown and distributed freely by him to his friends, at a time when the Albany Seedling was in everybody's garden. Neighbor got 'Albanys' from neighbor, and as many had been trying the 'White,' after a while found 'a new seedling' coming up accidentally amongst their 'Albanys,' and hence the White Albany originated in many a score of gardens here. A few pomologists also found them. And the editor of the Germantown Telegraph named it the 'White Pine Apple,' without knowing anything about the Ananas of the French catalogues. A committee of the Horticultural Society of Pennsylvania also 'found' it and they named it 'Albion,' and this is how it came to have 'all these names.' Lennig's White is the proper name."

Downing's notice of it is as follows: "Origin, supposed Germantown, Pa. This is one of the very finest flavored sorts grown; but unfortunately it produces but very moderate crops, and is therefore unsuited to any but amateurs. Plants vigorous. Hermaphrodite.

"Fruit, large, roundish obtuse conical. Seeds reddish, not deep. Color whitish, tinged with red. Flesh soft, tender, juicy, sweet, rich, delicious pine apple flavor."

No. 5.—THE GREEN PROLIFIC

is indebted to the editor of the Magazine of Horticulture for an early notice of its origin, in the October number for the year 1863, as follows: "This is the name of a variety produced by Seth Boyden, Esq., of New Jersey, from Hovey's Seedling and Kitley's Goliath. * * * The plants are very hardy, vigorous growers, with very large, dark green foliage; fruit large, very uniform, round, orange scarlet, good flavored, solid, parts readily from the stem, grows well up from the ground, and is extremely prolific; even more so than the Wilson or Downer's Prolific. It should be grown in drills or single rows."

Speaking from the experience of the same year, a committee of New Jersey growers remark: "The Green Prolific is a strong plant, with hardy leaf, and is exceedingly productive. The berries are large, but a little inclined to be soft."

F. R. Elliot, of Ohio, in a communication to the Horticulturist, in August, 1866, remarks: "With Triomphe de Gand we have imbibed a peculiar aroma, and with Green Prolific obtained, when fully ripe, the nearest to the perfect in quality of strawberry." To which he adds: "In productiveness, few varieties are its equals. In size of fruit its average is above medium, while they are uniform, not a few large and the remainder quite small, as in some varieties."

At Boston it is characterized, after full trial, as a strong plant with very hardy leaf, and exceedingly productive.

At the June meeting of Western New York Fruit Growers, for the year 1867, of twenty-eight ballots for the best six amateur varieties, it received four.

It has been grown in our State for several years, and seems to have given eminent satisfaction as an amateur or family variety.

Downing notices it as follows: "Plant hardy, very vigorous, very productive, and is highly valued by some as a market sort. Pistillate.

"Fruit large, roundish obtuse conical, orange scarlet. Surface soft, centre of flesh firm, rather acid."

No. 6.—THE AGRICULTURIST

came out under circumstances well calculated to attract a large share of public attention. Originated with the late Seth Boyden, of New Jersey, contemporaneously with Green Prolific, it was first exhibited at the annual strawberry show of the American Agriculturist for the year 1864. The immense crop of enormously large berries exhibited upon the plant, occasioned an excitement of the horticultural portion of our people such as has doubtless left an indelible impression upon the minds of many. The natural result was an immense demand for plants, and its dissemination; indeed so decided was this feeling that its more really valuable cotemporary the Green Prolific, seems to have been in a measure forgotten or ignored.

At the session of the American Pomological Society held at Rochester, in September, 1864, this variety was discussed and very highly lauded. Mr. Mead, formerly editor of the Horticulturist, had seen berries measuring between seven and eight inches in circumference; color and quality not the best, but good.

In an article contributed to the Horticulturist, in August, 1866, by F. R. Elliott, of Ohio, the average conclusion of the public after a fair trial of this variety is so well set forth that I extract therefrom as follows: "This sort, originating at the same time and by the same grower, as the one just named, (Green Prolific), has had so much more of puffing, that it is found ten times where the Green Prolific is once. Its vines are not as strong and vigorous as the Green Prolific, it is not as good a bearer; the fruit is quite irregular in form, many of them quite a cockscomb shape, while others have a neck, and are long and pointed. It is a handsome scarlet, with long, pointed, light yellow seeds; flesh, moderately firm, a pleasant flavor,—above mediocrity, but not really rich; desirable to the amateur, but not to the grower for marketing purposes. Its trusses bloom abundantly, but do not set well in all cases; and its footstalks are so low that the fruit lies too much on the ground. In hills, and with extra culture, doubtless it will show well."

At the fruit-grower's meeting in Western New York, in June, 1867, the Agriculturist received sixteen of the twenty-eight votes, heretofore spoken of, as one of the best six varieties for amateur cultivation.

The following from a New Jersey grower fully accords with my observation of this variety in Michigan: "Sometimes gives good crops, and when well grown is not surpassed in quality, and about half the berries are of the largest size; but it does not always yield well, and, unless well grown, is frequently about as poor a specimen of a strawberry as I ever tasted."

Downing notices it as follows: "Plant vigorous, foliage dark green; hardy and very productive. Pistillate.

"Fruit large, roundish conical, elongated, often with a neck. Surface somewhat uneven; first berries often cockscomb shape, deep crimson. Flesh dark red, quite firm, juicy, sweet, and rich."

No. 7.—THE CHARLES DOWNING

is yet another of the creations of Mr. J. S. Downer, of Kentucky. It was exhibited at New York, in 1867, and was introduced to the notice of the American Pomological Society at its session at St. Louis, Mo., in the September

of that year. The stock of plants however was transferred to parties at New York, by whom it was disseminated.

The editor of the *Gardner's Monthly*, in his issue for August, 1867, in speaking of specimens grown at New York, says: "It is large,—Mr. Thompson, of Staten Island, weighed twenty-eight which made one pound,—and the berry is firm, of good flavor, and fine color. The committee of the American Institute (Thurber, Ellis, J. J. Thomas, and Meehan), were favorably impressed with it, and would have awarded the Greeley premium of \$50, for the best seedling strawberry, which should equal the Albany Seedling in good qualities, but be superior in flavor, only that of their own knowledge they could not say,—the plants exhibited being only young runners of last fall,—that it would be as *productive* as Albany. It *appeared* as if it might do that.

Speaking of it in 1869, Mr. Charles Downing remarks: "It was grown quite extensively, and was quite equal to what its originator and friends claimed for it. * * * From all I could see and learn of it from others, it will prove a valuable market and family sort; although one grower in New Jersey said the leaves browned a little in the sun."

In August, 1869, the editor of the *Horticulturist* remarks: "It has not been our fortune, in years, to meet with a variety which combines so well the merits of quality and productiveness as this. In quality, it is far superior to the majority of the new kinds, and really better than any of those we have already named (Wilson, Nicanor, Boyden's No. 30, Triomphe de Gand, Agriculturalist and Jucunda among them), although it has a little acidity about it which the Triomphe and Jucunda do not possess."

At Boston the success of this variety seems to have been but partial; although in central Massachusetts an experienced grower considers it the most desirable sort, of medium season.

In August, 1870, after another year's experience the editor of the *Horticulturist* remarks: "Fully equal to all we have ever said of it; * * * best for family use; not suitable for other than a near market."

L. S. Fairchild, of Rolling Prairie, Wisconsin, says, in the *Gardener's Monthly* for October, 1870: "Charles Downing bears well; fruit large and excellent."

In 1872, in an essay read by James Draper, of Worcester, Mass., before the Worcester county Horticultural Society, on "Strawberries: Their Varieties and Culture," he speaks of this strawberry as successful, and in every respect desirable for that locality.

In June, 1872, Dr. F. M. Hexamer delivered an interesting address at the rooms of the Farmer's Club, American Institute, New York, which he accompanied and illustrated with a fine display of about thirty varieties of strawberries. He says: "*For the main crop*, there is one kind which has stood the test of years on all soils. Of it there are more raised and sold than of the thousand other varieties combined. It is sour but firm, carries well, looks well, and is good for everything, except to eat for the connoisseur. It is, however, the great berry, and its name of course is Wilson. Its rival is the Charles Downing, which seems to be proving itself fully as hardy, fully as prolific, and on the whole, the most valuable acquisition we have gained in the past six years. If there was but one single variety he would choose above all others, for all purposes, it would be the *Charles Downing*. It succeeds well in either sandy soils, heavy clay soils, in beds, hills, or rows, unless choked with weeds."

An equally high report of its success in Montgomery county, Ohio, is given

by W. F. Heikes, at the June meeting of the Montgomery county Horticultural Society; who concludes his notice of this variety by saying: "For my own garden and table I would give the variety preference over all others."

In Michigan it is understood to be generally satisfactory. My own experience and observation of it are certainly of a highly encouraging character.

Downing says of it: "Plant very vigorous and very productive. Hermaphrodite.

"Fruit very large, nearly regular, conical, deep scarlet. Seeds brown and yellow, rather deep. Flesh quite firm, pink, juicy, sweet, rich."

No. 8.—THE MICHIGAN

Is a seedling, originating with B. Hathaway, of Little Prairie Ronde, Cass county, Michigan, who sent it out on or about the year 1858. During this year some account of several seedlings of his, designated by numbers, was contributed by him to the *Western Rural*; of these number, one is understood to designate the variety subsequently named Michigan. Of this he says: "For field cultivation it will take the lead; the berry is light scarlet in color; about the size of the Wilson; with fewer small ones; hang on the vine well; and as to fruitfulness it is a marvel to behold. One hill, in no way remarkable from the other, produced one and one-third quarts, or at the rate of four quarts to three hills."

In the "editor's portfolio" of the *Horticulturist* for October, 1869, under the head of "Hints on Selection of Varieties of Fruit for fall transplanting," we find the following notice of this variety: "As far as our experience has gone, we have found it the finest in growth of all the varieties we cultivate. It seems to succeed in any soil, and especially a sandy one, and we have hopes that it will justify the anticipations we have formed of it. We observe that Messrs. Purdy & Johnson are also highly pleased with it. 'The plant is the nearest, in foliage and vigor, to the Wilson, of any sort we have ever tried.' Fruit light scarlet, uniform in size; round to flattish; medium to large; very productive; flavor excellent; firm, and will undoubtedly bear carriage a long distance."

During the same month, the *Gardener's Monthly*, under the head of "New and Rare Fruits," notices the Michigan as follows: "While on Mr. Adair's grounds, at Detroit, last summer, he pointed out this variety in his collection. It was not in condition for us to offer an opinion, but Mr. Adair spoke very highly of it." It was introduced in 1868. An exchange says of it: "Raised by B. Hathaway, of Little Prairie Ronde, Michigan; a week or ten days later than the Wilson, said to keep better, more even size, and finer fruit."

It seems still to have maintained its standing in 1870, as we find the *Horticulturist*, in August of that year, indulging in a "chat about strawberries," in which he remarks: "*Michigan Seedling* is exceedingly vigorous, with dark green, healthy leaves, and extremely large stools; very productive; fruit only of medium size; light crimson color; moderately firm; not as much so as the Wilson; flavor pleasant, excellent, and good; desirable for family use."

In a series of notes on strawberries in central Massachusetts, Mr. James Draper, of Worcester, heretofore quoted, thus speaks of its success there during the trying season of 1870: "A hardy, healthy, vigorous plant; enormously productive; fruit of the average size, and fair quality; very promising."

It was sent to me by the originator soon after its introduction to the public, together with two others. I tried it in rows and also in beds with very satis-

factory results; and became so well satisfied of its desirableness as a family fruit that, in the spring of 1872, I planted a plat of it for the main crop,—placing but a single plant in a hill, at distances of two and a half feet by one and a half. The runners have been kept closely cut. Last fall the stools from each of these single plants would doubtless have averaged from eighteen to twenty inches across. A few days since, spring of 1873, I counted the blossoms and fruit upon a few stools and found they varied from 330 to over 350 to each plant, and I doubt not the average of the whole plat would have been as high as 300 to each plant; a very large share of which promise to mature fruit unless the drouth of the last few weeks shall prevent.

Although the variety is hardy, vigorous, and exceedingly prolific, I do not regard it as firm enough to bear transportation, except to near markets, besides which its color is so light even at full maturity that buyers will be inclined to pass it by as unripe. Its lack of firmness is also an objection to it for canning purposes. Still its many valuable qualities render it desirable for home use. Ripe at Plymouth this year (1873) June 16th.

Mr. Hathaway, in his description of the variety, characterizes it as “staminate.” This, as generally applied to the strawberry, is understood to mean that the blossom possesses the stamens or male organs in perfection, while the pistils or female organs are imperfect. Such blossoms can seldom, if ever, produce fruit. I infer that Mr. H. meant to be understood that the blossoms are perfect, in both stamens and pistils, in which case they should be characterized as hermaphrodite, which I understand to be the case with this variety.

The Michigan is not described in Downing's revised work.*

NO. 9.—THE KENTUCKY

is yet another seedling originating with that eminently successful originator of new strawberries, the late J. S. Downer, of Kentucky. It was introduced in the year 1869 by Wm. Parry, of Cinnaminson, New Jersey; who brought it to the notice of the editor of the *Gardener's Monthly*, by whom the following notice and description was inserted in his issue for August of that year:

“The Kentucky Late Strawberry.—While our markets have been well supplied with early strawberries, we have not given so much attention to large late varieties as their importance would demand; consequently good strawberries become scarce before raspberries make their appearance. We were shown some very large fine strawberries on the 19th of June, introduced by Wm. Parry, of Cinnaminson, New Jersey. The plants are strong and vigorous, with long, stout fruit stalks, bearing the berries well up from the ground; blossoms perfect, fruit very large, bright scarlet red, beautiful and firm, bearing carriage well, excellent quality and very productive; called the ‘Kentucky,’ a seedling raised by J. S. Downer, of Kentucky, from Downer's Prolific, which from all we can learn will prove a valuable late variety.”

The variety was figured also in the next month's issue.

The editor of the *Horticulturist* also notices this fruit in his portfolio for

* NOTE.—Under date of April, 1874, Mr. B. Hathaway, the originator of the *Michigan*, writes the Secretary as follows concerning it: “Whoever knows about the Michigan Strawberry, as it does for me, knows it has not been overpraised; at least its performance on my grounds has not been overstated. That it has failed on other soils seems probable; and on the sand I have reason to think it has not given satisfaction. With all the failures conceded that may be claimed, I think it will be found to have been more successful in the west than any one of the hundreds of new sorts brought from the east in the last fifteen years, with the exception alone of the Wilson; and here it pays me better than that variety, because of its lateness. The drouth last year spoiled all my strawberries; I only sold \$25 worth from one-half acre, and the dry weather was so prolonged that I made but few plants, and the past winter has been very severe on those, not being covered at all.”

August of the same year, closing with the remark that: "Upon cutting with a knife, it will be found unusually white, and firm in flesh,—very desirable points for preserving or canning."

In November, 1870, James Draper, of Worcester, Mass., gives his experience with this variety, as follows: "Kentucky (new) I fruited to some extent, and I believe it will become one of the most popular late varieties on the list. Season very late; fruit very large, firm, of the finest quality, and enormously productive; plant vigorous, healthy, and hardy; satisfactory in every particular."

As early as March, 1872,—and, of course, upon the experience of only the previous two years, Dr. F. M. Hexamer, an extensive grower, of Newcastle, New York, includes it in a list of ten varieties, "as best adapted to the widest extent of territory, and the different systems of cultivations," and for planting especially upon light soils.

In June, 1872, James Draper, of Mass., again speaks through the Horticulturist as follows: "The Kentucky is the latest ripening berry that we now have. The fruit is equal in size to the Downing, but not quite as attractive in appearance, being somewhat irregular in shape, and of a dull red color, but it is a heavier bearer, and much superior in quality. For all kinds of soil, and especially for a light sandy one, where many kinds will not flourish, these have given the best of satisfaction, whether grown for home use or the market."

In his June address before the American Institute Farmer's Club, Dr. Hexamer says of Kentucky: "On light soils it is excellent. Does not have a high flavor; not as good or as prolific as Boyden's No. 30. It is not quite as late as the Napoleon Third; a good variety for market or home use."

In the report of W. F. Heikes to the Montgomery county Horticultural Society of Ohio, heretofore quoted, the Kentucky is also very highly recommended for that region.

I have but little knowledge of its trial or success in Michigan. I received it last year from Mr. Hathaway, together with a number of other varieties, and can only say that the vigor of the plants and the few specimens of the fruit produced the present season (1873) seem to point to the probability of its success; and I have been led to infer that Mr. Hathaway, from his experience with it, considers it promising. Hermaphrodite.

The notice and description in Downing was furnished by the introducer, Mr. Downer not having seen the fruit at that time.

THE ASH AND THE LARCH.

BY ARTHUR BRYANT, OF ILLINOIS.

Since the writer, in an address before the oldest agricultural society in Illinois, in 1850, first urged upon the farmers the importance of tree-planting on the prairies, the subject has been persistently pressed upon public notice by the horticultural societies of Illinois. The idea of forest-planting is becoming popular; and as its inception was gradual, there is reason to hope that its influence will be lasting. Sudden and violent outbursts of zeal seldom produce permanent effects,—witness the White Willow fever of a few years since. One enterprise of the kind, well worth notice, has been undertaken, during the past year, by Robert Douglass, of Waukegan, who has begun to plant a tract of three hundred acres with forest trees, upon a system which, if successfully carried out, will do much to determine and illustrate the best mode of proceeding.

In the present report remarks will be made upon three or four of the most useful forest trees suited to the climate of Northern Illinois. The planting of the White and Burr Oak, the Black Walnut and the Butternut, is, doubtless, well understood by all who have paid any attention to the subject. The White Ash is one of the most important timber trees in the northern parts of the United States; but, unfortunately, is not so easily raised from seed as those above mentioned. If the seed be sown soon after gathering from the tree, without drying, it will come up well in spring; but if dried, a great part will often fail to vegetate the first year, even if kept through winter in damp sand—care must be taken not to cover too deeply. Probably forest trees, as well as others, often fail from this cause. When self-sown they commonly have no other covering than leaves or a little earth, when concealed by mice or squirrels. If sown in autumn, Ash seed should be covered with litter during winter to prevent washing out by rains.

It seems very probable that the seed of the Green Ash is often gathered and sown as that of the White. The Green Ash is common along streams in the West,—it produces seed more frequently than the White Ash, and upon small trees, and is therefore more easily collected. The seed vegetates with greater certainty than that of the White Ash, even if sown dry; and the young trees grow more rapidly for the first year or two. When in leaf, it may easily be distinguished from the White Ash; the timber is similar in quality, but it has the disadvantage of never becoming a large tree.

NOTE.—We are indebted to O. B. Galusha, the able and industrious Secretary of the Illinois State Horticultural Society, for four of the best papers in this book, viz.: Those by Arthur Bryant, Prof. Riley, Dr. Le Baron, and Prof. Burrill.—SEC.

The White Ash is somewhat variable in its characteristics, and some of these variations have formerly been named and described by botanists as permanent varieties, or even species. It belongs to northern latitudes, and only obtains its fullest developments in colder climates than that of Northern Illinois. The Blue Ash abounds in more southern latitudes than the White; it is in every respect as valuable, and has the advantage of being more durable. The combination of strength, lightness and elasticity in Ash timber renders it superior to any other native wood for many purposes, and the demand for it must always be extensive.

Much has been said and written in praise of the European Larch, but nevertheless, little if any notice has been taken of its peculiar fitness for railroad ties. No way of making a railroad track has been found to answer the purpose so well as that of laying the rails upon cross timbers; consequently, while railroads exist the demand for ties must be very great. In Great Britain the Larch is used for that purpose in preference to any other wood. The shape of the tree renders it peculiarly fit for ties,—when closely grown, it is tall, straight, destitute of large branches, and tapering very gradually from the base. The wood, beside being very durable, is solid, giving a firm hold to spikes. Another advantage is the much greater quantity of timber which may be obtained from any given number of acres of Larch than of most other trees. If we may believe English writers, ten acres of Larch will afford as great a quantity of ship timber, as seventy-five acres of Oak. Larch can be grown more thickly than Oak, and does not divide at the top into large branches; consequently, a greater portion of the tree is available for use. The writer has Larch trees which, being thickly grown, have, in fifteen years, attained the height of fifty feet, with a diameter of from eight to twelve inches. The European Larch should never be planted upon wet land.

The American Larch has been eulogized as fully equal to the European in durability. Michaux describes it as possessing the same properties. In the British provinces, north of the St. Lawrence, and in Newfoundland, where it is highly esteemed, it grows upon uplands, forming large masses of forest. In the United States it is found only in swamps,—never on upland,—a fact which Michaux regards as evidence that the climate of the northern limits of the United States is too mild for its constitution. From all the testimony the writer has been able to collect from those who have used it, it appears that when grown in swamps, in the United States, it is by no means remarkably durable. Whether this is owing to soil or climate, is a matter of uncertainty. The European Larch is found principally in the central and southern parts of Europe, and is therefore better suited to the climate of Northern Illinois than the American species, which reaches perfection only in a much colder climate, and is, likewise, of slower growth.

It may not be improper here to notice recently published opinions of men of note in regard to one or two subjects which, although not strictly belonging to timber-planting, are often discussed in connection with it:

Mr. Thomas Meehan, in an article published in the New York Tribune, and copied into the *Prairie Farmer*, criticises a paper read by Prof. Hough, before the American Association, and takes the ground that trees do not affect climate. He also asserts that the crops with which the farmer covers the soil are a full compensation for the absence of forests as far as the retention of moisture is concerned. In a notice of the report of the Agricultural Department,

for 1872, in the *Gardener's Monthly*, for January, he uses the following language:

"The report of the botanist goes over the various statements made over and over again, on the flimsiest of foundations, that great changes of climate have occurred in various parts of the world by the cutting away of forests. It is time that sensible men had dropped this nonsense."

Mr. C. V. Riley is reported as having expressed similar opinions at the last meeting of the Illinois State Horticultural Society, and as having made the surprising statement that there is at present more timber in the State of Illinois than there was twenty years ago.

It is not proposed to enter upon an elaborate argument upon these subjects, —the limits of this report will not permit,—and they may attract more interest in discussion than in a written essay. A few brief suggestions only will be made.

That the climate of many parts of the earth has been unfavorably affected by the total destruction of forests, is an opinion held by men of greater scientific attainments and more extended observation than Mr. Meehan. That he should designate the foundations of this opinion as being of the flimsiest character, savors somewhat of arrogance; particularly, as some of his assertions do not appear to rest upon a very substantial basis. But to the point: Meteorological tables, showing the temperature and the depth of rain-fall, furnish the only recorded means of deciding in regard to a change of climate. Let us suppose a comparison of the records of temperature and moisture of two periods of ten years each. Let us also suppose these periods separated by an interval of fifty years, during which time a tract of country is settled and cleared of forests. The average temperature in the two periods may be nearly the same; there may be little difference in the rain-fall; and yet in the latter period, the atmospheric conditions, the variations of heat and cold, of dryness and moisture, may be so changed by the destruction of the woods, as to affect injuriously the productions of the soil, and lessen the comfort of animal life. Every one knows that a man can endure a much greater degree of cold in the still atmosphere of a forest, than when exposed to wind on the open prairie. Why may not the same be true of vegetable life? It is not true that the grain and grass with which the farmer covers the land, prevent the evaporation of moisture as effectually as a forest; or even as the growth on unpastured prairies. Much of every farm is closely pastured through the growing season; the removal of small grain and hay leaves the land naked from midsummer onward; the rains run off more quickly than from woodland, and evaporation is more rapid; so that if the rain-fall be not diminished, there is a diminution of its beneficial effects. Peaches were formerly plentifully produced in New England; they can no longer be grown there, and the removal of the forests is believed to be the cause. Mr. Meehan seems inclined to doubt that the drying up or diminution of springs and streams is a consequence of the loss of the forests. What other cause can be assigned? The writer has reason to know that the atmosphere and soil of the State of Illinois have become drier during the forty-three years which he has inhabited it, in consequence of the destruction of the native grasses and other plants which clothed the prairies, and the cultivation of the earth. Many facts might be cited in evidence.

SOME POINTS OF EXCELLENCE POSSESSED BY THE EUROPEAN LARCH.—BY
E. Y. TEAS, OF INDIANA.

It is unfortunate and detrimental to the immediate and general introduction of the Larch to its rightful and proper position as a timber tree in our country, that claims have been made for it that are apparently untenable, or at least unwise, and unnecessary to establish its surpassing value and excellence as a timber tree. We do not believe it was intended by our Heavenly Father to unite all the desirable qualities and possible excellencies of timber, for all the varied needs and uses of man, in one single tree; but that many species possess undoubted excellence in various respects. While we believe the European Larch possesses definite, decided good qualities, in some respects superior to almost any other kind of timber, these merits do not exclude *many* other trees from positions of great value in timber culture. It was unfortunate for the Larch that, in consideration of its great success in some parts of Europe, in certain and peculiar situations, the same tree should be claimed to be equally well adapted for all situations and all climates in our country, while we scarcely possess a township of land, in our whole domain, similar to that on which the peculiar virtues of the Larch were first manifested in Europe. The old Duke of Athol, who first conceived the idea of Larch culture in Britain, was not at first sanguine of success, but, with Scotch shrewdness, at first planted only a few trees by way of experiment; and these he located not on his rough, highland cliffs, that he most desired to cover with forest growth, but in the rich, level land, where they could receive constant attention and care.

These succeeded so well that other plantings were made at higher and still higher elevations, with uniform and unvarying success; until during the lifetime of the Duke who began the experiment, many millions of Larches were growing and flourishing on his estates near Dunkeld. When I visited these plantations in the summer of 1867, I found Larches on the high rocky lands in this picturesque region flourishing thriftily beside oaks planted at the same time,—the latter being less than one-tenth the size of the Larches, and compared with them, quite useless for timber. The Larch is found to flourish at a greater elevation and on thinner soil than any other timber tree; the leaves, dropping annually, enrich the soil more rapidly than the foliage of any other tree, and the timber is more valuable in the market than any other products of such soils.

My inquiries, which were not as thorough as I now wish they had been, lead me to the belief that the Larch attains its most rapid, healthy development, and produces timber of the greatest value on the rough, hilly and rather barren land of the Scotch highlands, and on similar lands in England,—about Bristol and elsewhere; that the growth, health, vigor and product are not as satisfactory on the rich and more valuable farming lands of the level district.

In regard to the durability of Larch wood, it seems to be a well attested and undeniable fact, that in some localities it has proved to be the most durable of any known wood. It is well known, however, that a given kind of tree varies greatly in texture and quality, when grown in different kinds of soil, climate, or under other circumstances affecting the growth of the tree; and it is folly to expect to grow Larch timber on the rich prairie soil of Illinois, similar in texture or value to that grown on the Alps or Scotch highlands. In forest culture, as in agriculture, in our United States, a mixed husbandry will be

found most advantageous; each person selecting for his own locality, needs, market or personal taste or preference, such varieties of timber as an intelligent judgment dictates. One thing is evident to every observing, thinking man, and this is that the exigencies of our times demand, more than almost any other one thing, a united, well directed and widespread effort at timber culture. In my own State, a few years ago, the great drawback to its settlement and development was the superabundance of timber that interfered with agricultural pursuits. Now, the first and leading question of the seeker after real estate in our section is, "How much timber land have you?" and the price of land depends upon this more than upon the quality of soil or many other important requisites.

LECTURE ON ENTOMOLOGY.

BY PROF. C. V. RILEY, STATE ENTOMOLOGIST OF MISSOURI.

LADIES AND GENTLEMEN,—Eight years ago, I wrote my maiden essay for the State Horticultural Society, of Illinois, on the codling moth. It was read by that veteran horticulturist who has been carrying on his investigations this last summer in Germany and Austria,—and whose presence we all miss here to-night,—Dr. Waters. To the kind approval which that essay met, I owe no little of that enthusiasm which has, since that time, sustained me in my efforts to unlock nature's secrets. I am proud to say that there was not a single fault of commission in that article; but since then we have learned much that was then unknown about this codling moth.

I will present to you the more important facts; I cannot give you a full account. It would occupy more time than we shall have to-night.

First, This codling moth is an imported insect. There was a time when it had no existence in this land, and it furnishes us with an excellent illustration of the importance of preventing the importation of noxious insects. If we had had the knowledge we now have, we might easily have prevented its introduction, thus saving the immense loss which it has caused. The mellowing and vivifying influence of the vernal year causes our codling moth to burst its silken cerements which had held and enwrapped it during its long winter torpor and sleep. After meeting her mate, the female flits from tree to tree, and deposits her eggs in the calyx of the new-formed fruit.

I have here a sketch showing the different stages through which it goes. In a few days this egg produces an insect which makes for the heart of the young fruit. There it riots around the core, causing perforations and excavations filled with its own excrement. It takes about twenty or thirty days to attain its full growth. It has then changed color, and the head and cervical shield, which were formerly black, have become brown. This larva now issues from the fruit. It generally leaves the fruit during the night, either by letting itself down by a silken web, or by crawling down the trunk of the tree,—about half get to the ground one way, and half the other. Its object in descending the tree is to find some sheltered spot in which to spin its cocoon. Having found this place, it begins to spin its cocoon, which it always covers on the outside with the particles of the bark of the tree. The normal spinning place is under the loose scales of bark of the tree, so that it is very difficult to find it. Within this cocoon the larva changes to a chrysalis. This stage lasts about twelve days, during which time it remains without food or

motion. It then works its way partly out of the cocoon by these spines [illustrating] and gives forth the moth.

At first the wings are damp. You can see them expand, or grow. They are little pads when they first come out of the chrysalis, but in the course of ten minutes they are fully expanded.

This moth is inconspicuous because it is entirely nocturnal in its habits. It is brown,—has two large spots near the tips of the wings, of brown, and of metallic luster, and is very pretty.

In this manner the transformations of this little moth are gone through,—those transformations which, from time immemorial, have been looked upon as emblematic of man's immortality,—the groveling worm representing our earthly condition. There are two broods each year. This was long suspected by us in the West, but eastern authors had not regarded it so, and I had the honor of demonstrating it. The larva of the first brood frequently co-exist with those of the second,—thus the later individuals of the first brood will be frequently found in the same apples as the earlier individuals of the second.

Now, let us make a few practical suggestions: First, I will refer to the direct killing of the insect. We can take advantage of the larva habit. You are all, as members of this Society, conversant with the different kinds of bandages that have been employed for this purpose. The main point I wish to convey is, that whatever bandage is placed around the tree, it should be placed on the tree by the first of June, in this latitude; or it may be delayed a little in the more northern parts of the State with impunity; but it is safe to have them on by that time. They should be examined six or seven weeks after the blossoms fall from the tree. Dr. LeBaron gives seven weeks for the northern part of the State, after the blossoms have fallen; and, for the latitude of St. Louis, I would say six weeks. They should then be examined four times, at intervals of ten days, and once after the apples are all taken off the tree.

Now, with regard to the best bandage: as Mr. Wier is present it will be best for me to read what I have said about the best kind of bandage in my last report:

“WIER'S APPLE-WORM TRAP.

“Fully resolved to test this trap thoroughly, in comparison with other methods of allurements, I commenced (having, of course, purchased the right to use!) as early as the first of May to prepare a number of trees as follows: 1st. With Wier's trap screwed on in different positions,—some trees having single traps, either on the north, south, east, or west sides, and placed at different heights from the ground, and some having as many as three traps; 2d. Strips of old sacks, four inches wide, and lined on one side with pieces of lath tacked on transversely, and at such distance from each other that, when brought around the tree, they formed an almost complete wooden ring; 3d. Bandages of various kinds of rag; 4th. Hay ropes; 5th. Paper bandages, made of the cheapest kind of straw paper, folded several times, and in widths varying from three to six inches. In order to insure the utmost accuracy, these several traps were regularly examined every twelve days throughout the season, and a careful account kept of the worms or chrysalides found under each; and where it was a question as to the comparative merits of the different traps, they were placed on trees of the same variety. The results of these experiments,—not to waste space with the detailed array of figures,—may be thus summed up:

No apple worms were found until the 14th of June, and, though many other insects had previously taken advantage of the shelter, *not a single plum curculio was found*. While, therefore, there is no harm in having the bandages on as early as recommended last year, in ordinary seasons, little, if anything, will be lost by waiting till the first of June. Where three of the Wier traps were on the same tree, I obtained more worms than where there was but one; and where there was but one, there was no difference in favor of position as regards direction or altitude,—taking the season through. The lath canvas encircling the tree secured, on an average, five times as many worms as any single Wier trap. The rag, paper, and hay bandages allured almost as many, and either kind more than the single Wier trap.

I hope, therefore, that the patentees have already realized the anticipated fortune from their invention; for while I should be sorry to injure their chances in the least, truth compels me to state that, after a year's trial, I am not quite as favorably impressed with the usefulness of this shingle-trap as I was before trial, and am more thoroughly confirmed in the opinion expressed last year, that 'notwithstanding all the theories of my friend Wier, it must always be inferior to any trap that encircles the tree.' I do not wish to detract from its merits one jot, and where old shingles are abundant and other material scarce, the former will still prove valuable for the reasons given a year ago; and Mr. Wier would deserve our thanks for showing us how to use them, did he not persist in claiming too much for them, and in making us pay for their use.

"Time, expense, and efficiency considered, and so far as one year's comparison will warrant conclusions, I place the different materials enumerated in the following order of merit:

"1. Paper bandages. Common straw wrapping-paper, 18x30, can be bought for sixty cents per bundle. Each bundle contains two hundred and forty sheets, and each sheet folded lengthwise thrice upon itself will give us eight layers, between two and three inches wide, and be of sufficient length to encircle most ordinary trees. It is easily drawn around the tree and fastened with a tack, and so cheap that when the time comes to destroy the worms, the bandages containing them may be detached, piled in a heap and burned, and new ones attached in their places. If eight bandages are used to each tree during the season, the cost will be just two cents per tree; and the owner could well afford to treble the number of sheets, and keep three on each tree, either together or in different places.

"2. Rags. These have very much the same effect as paper, but are more costly and difficult to get of the requisite length. Where they can be had cheaply, they may be detached from the tree and scalded with their contents.

"3. The Wier trap used as recommended last year, is perhaps the next most useful; but both cost and time required to destroy the worms are greater than in the first two methods.

"4. The lath-belt is the very best of all traps, as far as efficiency goes; but it is placed fourth on the list, because of the greater cost and trouble of making. On the same kinds of tree (Early Harvest), and in the same orchard, I have taken, with this belt, between June 15th and July 1st, as many as sixty-eight and ninety-nine larvæ and pupæ, against fourteen and twenty in the single Wier trap.

"5. Hay-bands, on account of their greater inconvenience, I place last.

"The experiments were mostly made in a large and rather neglected orchard, belonging to Mr. Spencer Smith.

"All these methods are good, and the orchardist will be guided in his choice by individual circumstances."

I should state here, by way of parenthesis, that all these bandages are most effectual on young and smooth trees; because, on older ones, where the bark is rough, a great many worms spin up before they leave the tree, and before reaching the bandages, and others spin up below the bandages, hence the importance of scraping. We see here again how perfectly absurd is the claim that all the worms will be attracted to a single one of the Wier traps. They will be attracted to the most cosy place of shelter, whether that be afforded by the bark of the tree, by the Wier trap, or by any other trap.

We can also do much by destroying the worms before they leave the fruit. It has generally been recommended to pick up all the apples, or cause them to be devoured by hogs or sheep, but many varieties of the apple trees do not drop their fruit until after this worm has issued. Now here is a problem for our Agricultural College students to work at. The absence of the worm is generally known by a mass of frass on the outside of the apple. Now, it would be futile to go to a great deal of expense, when the worm had left before the fruit fell from the tree.

With regard to pears, I have been informed by Parker Earle that the worm invariably leaves before the fruit falls from the tree.

Another method is to use a hook at the end of a pole, as suggested by Dr. Le Baron. I mention these little facts because they may not occur to many of you, and I know many of you may profit by them.

There are many indirect ways of fighting this insect,—first of all, by encouraging its parasites. I have discovered that two parasites prey upon the codling moth. Some of the college students before me may want to know what I mean by parasites. If I told you of a bug that deposited its eggs on the bodies of sheep or other animals; that that egg hatched out into a serpent, which fed and flourished in the fatty portion of the sheep, without injuring it, for a time, apparently; that on the contrary, the sheep so infested would be able to live without food, whereas without the parasite it would die; that after a time the serpent ate its way through the sheep, burrowed into the ground, and after remaining there an indefinite time, would struggle through the earth and issue as a bird, like its parent, the story would appear ridiculous. Yet it is hardly more wonderful than the actual facts of parasitic insect life.

But I will illustrate the parasitic theory of the insect world by showing you the tomato worm.

[Here the lecturer illustrated, at some length, the curiosities of parasitism by means of drawings on the blackboard, which cannot be produced here.]

In referring to the common tomato worm, he remarked:

There is a peculiar little microgaster, a little fly that comes along and invariably settles on the back or head of the worm, knowing very well that it cannot there be injured. It punctures the skin of that worm and inserts an egg, or perhaps forty or fifty. The maggots hatched from these eggs feed on that worm,—which in time becomes sickly, until at last the little parasites are fully grown, and then they spin cocoons on the back of the worm, from which, eventually, little black flies, like the parent, issue. Now, this is primary parasitism; but there are secondary, tertiary, and even quaternary parasites. And so it is, in the language of Swift:

"So naturalists observe a flea
Has smaller fleas that on him prey;
And these have smaller still to bite 'em,
And so proceed, *ad infinitum*."

We frequently have no less than four distinct parasites feeding on one another, and all of them on a vegetable feeder.

Mr. Galusha—Is it invariably the case that parasites are much less in size than those upon which they prey?

Mr. Riley—True parasites, as distinguished from cannibals, invariably and necessarily are. I have mentioned two parasites on this apple worm. I will try to describe one: it is the *macrocentrus delicatus*. This fly punctures the worm while yet in the heart of the apple, and spins its cocoon inside the cocoon of the apple worm. This is a yellow fly; the other is a black fly, *pimpla annulipes*. Instead of destroying it before it has assumed the chrysalis state, it does not destroy it until after.

Besides these, I know that two cannibal beetles—the Pennsylvania soldier beetle, and the two-lined soldier beetle, as well as the ants and cockroaches,—destroy it as it leaves the fruit. Then there is a species of *trogosita* which Dr. LeBaron and I have found in the bandages, destroying the worm. I mention this to show that it has its enemies notwithstanding that it lives in the center of the apple, and descends from the tree at night.

With regard to liquids or lights, I will simply say they are of no practical use. Both modes kill as many of the enemies of the codling moth as of the codling moth itself.

A few words as to its food plants: The apple is essentially its food plant, but in late years I have seen it in pears, plums and peaches, and it breeds in wild crabs. From these facts we see how foolish is the suggestion of Dr. J. S. Parker, of Ithaca, New York, to exterminate the codling moth by ceasing to grow apples for one or more years. It would thereby simply be forced to breed in other fruits.

MR. BARLER—At what time is the egg deposited?

MR. RILEY—Just about the time the blossoms are falling and the fruit is forming.

I should have stated the difference between the first and second broods. In the first brood the egg-state lasts about ten days, the larva-state about thirty days, the chrysalis-state twelve to fourteen days.

The second brood, however, remains in the larva-state all through the winter, no matter whether it leaves the fruit in August or November. This fact I first recorded in this country, not knowing that the same fact had been recorded by a French author in 1850.

Another point that I have not mentioned, and among others which I have not had time to mention, is the necessity for destroying these winter cocoons in our cellars and storehouses. The necessity of destroying them becomes apparent, because we keep them out of the way of the natural enemy that would otherwise devour them.

A MEMBER—Could you find them in an apple barrel that was hooped up?

MR. RILEY—Yes, sir; under the hoops—great numbers of them.

A MEMBER—Did I understand you to say it was purely nocturnal?

MR. RILEY—It might fly, to endeavor to escape, in the day, but it is essentially a nocturnal insect. I have found the moth at rest in the day-time under the bark, and I have found it in the house. Even in confinement it rests during the day, and becomes active during the night.

A MEMBER—Are they not attracted by light?

MR. RILEY—Very slightly, indeed. If you have a light in the orchard, and some way to secure them, you will find a few of them among hundreds of other species.

MR. HUGGINS—I had apples in my cellar, in which there were two windows. I moved these apples, and put in a stove, and I was quite surprised to find, in the middle of the day, a number of these codling moths active in trying to get out. I would like that fact explained.

MR. RILEY—It was quite warm enough for them to fly, and they tried to get to the light because they imagined the window a hole of escape. Though the moth is nocturnal, it can nevertheless discriminate between light and dark. Following its natural instincts, it wants to get to the orchard. It does not understand that there is a window there, or glass. That is the reason that it beats upon the glass.

A MEMBER—Do not codling moths fly around our lamps in the evening?

MR. RILEY—The codling moth is very rarely found around our lamps. I have tried it, and even where insects pattered on my windows and got into the room, making a noise like a hailstorm, I would very rarely find codling moths among them, though I knew they were abundant,—there were apple trees infested by them not two rods away.

MR. BURRILL—Is it known whether they eat any thing?

MR. RILEY—The moth has a short tongue, and may feed to a slight extent on liquid sweets; but that it is attracted by sweets I do not think. But certain kinds of beetles which prey upon it are so attracted.

To give you briefly a summary:—The codling moth is an imported insect. Place no confidence in the light and bottle systems, but rely on bandages; have your bandages on by the first of June; examine them six weeks after the blossom falls, and then four times subsequently, at intervals of ten days, and then once when the fruit is gathered; be sure to destroy the cocoons in storehouse; and, lastly, encourage winter birds.

THE BIRD QUESTION.

BY DR. WM. LEBARON, STATE ENTOMOLOGIST OF ILLINOIS.

In the course of the discussions which have taken place at our horticultural meetings, a number of topics more or less intimately connected with my own department of practical entomology, have sprung up, and have elicited a good deal of interest, but have generally been very partially and imperfectly treated.

One of these subjects is that which is commonly referred to as *the bird question*. It has appeared to me that it might be interesting and useful to take a more comprehensive view of this subject than has been ordinarily done, for the purpose of determining what is the true relation which birds bear to horticultural and agricultural interests.

We are liable to form erroneous opinions of things from the imperfection of our knowledge concerning them, and fully as often, perhaps, from taking a partial or one-sided view of them, as they may happen to affect our own personal interests. And so it is with the bird question. One man, with refined tastes and a strong affectional nature, and who, we will suppose, has never been much annoyed by these creatures, regards birds as one of the chief ornaments of his grounds, and one of the delights of his life. If his birds should leave him or be destroyed, he would feel it as an irreparable loss, an aching void in his surroundings. He looks at them from the sentimental or romantic point of view. In his mind they have become indissolubly associated with the varied and pleasing changes of the seasons; they usher in the vernal year; they enliven the summer solstice; and as they flit silently past, in their changed and plain plumage, on their southward migrations, in the fall of the year, they seem to be in perfect harmony with the falling leaf and the sombre tints of autumn.

Another man, not necessarily less refined, perhaps, but who may have a somewhat sharper eye to the utilities than to the amenities of life, and who may have turned his attention to the cultivation of some of those smaller and more delicate fruits which are so very tempting to birds, as well as men, or who may have happened to plant his corn-field along side some bushy meadow where blackbirds naturally congregate, finding himself much annoyed, and, it may be, seriously damaged by these creatures, regards them in a very different light. If he ever had any partiality for birds it will to become rapidly dissipated; their charms will be much less apparent. In short, he will regard them as nuisances.

Let us look at this subject a few moments; first, in its general aspects, and then narrow down our inquiry to the practical points at issue. Every one

knows, in a general way, that birds are one of the great instrumentalities of nature for keeping in check the various tribes of insects, but no one, who has not examined the subject, is aware of the extent and importance of this agency. Almost all the land birds, except the larger birds of prey, subsist more or less upon insects, and more than half of them live upon insects either chiefly or exclusively. The land birds, with respect to their food, may be divided into three classes, the *omnivorous*, the *insectivorous*, and the *granivorous*. The following are the principal omnivorous families: The starlings, the orioles, the blackbirds, the crows, and the jays, the *bomby-cillæ*, or cedar-birds, and the titmice. These birds, as a general rule, feed indiscriminately upon berries, seeds, and insects.

The principal insectivorous families are the night-hawks, the swallows, the shrikes, the fly-catchers, the *sylviæ*, or warblers, the wrens, the *sialietæ*, or blue-birds, the creepers, and the woodpeckers.

All these birds live exclusively, or almost exclusively, upon insects. A few of them are sometimes seen to glean a few ripe berries in their season; but these instances are exceptional to their ordinary habits.

The granivorous families are the sparrows or finches, the buntings, the tanagers, the grosbeaks, and the *gallinacæ*, or birds of the poultry kind, including the various kinds of grouse and partridges. It is a note-worthy fact, however, that a large portion of these birds, which are classified as being pre-eminently granivorous, are also largely insectivorous; and indeed most of them feed their young almost exclusively upon the larvæ of insects.

It is evident, therefore, that in the economy of nature birds are the natural antagonists of insects; and when we consider what wide devastation a single species of insect will sometimes effect, when it multiplies to excess, we can not doubt that if the agency of birds should cease, every green thing on the face of the earth would be destroyed by the numberless tribes of insects.

This is the general view of the subject; but when we come to look at the matter more particularly, some striking and exceptional facts present themselves. Though, as we have seen, birds present a sufficient antagonism to insects in the state of nature, they fail to furnish an adequate check to the excessive multiplication of insects which has been induced, in certain cases, by human intervention. The extensive cultivation of certain grains, fruits, and vegetables, has been followed by a proportional, and sometimes much more than proportional, increase of some of those species of insects which subsist upon them. But there being no species of birds which are the special antagonists of these particular kinds of insects, there has been no corresponding increase of insectivorous birds. Accordingly, we find that in reducing the numbers of many of those species of insects which are most injurious to the farmer and horticulturist, birds afford so little aid that, in the practical treatment of the subject, they may as well be thrown wholly out of account; whilst in the case of others, they furnish us with a partial but inadequate assistance. In the last category are to be placed some of the exposed leaf-eating caterpillars, such as the tent caterpillar and the canker worm, which have been known in particular localities, to have their numbers materially reduced by certain species of birds. But if we take such examples as the chinch bug, the Colorado potato beetle, the plum curculio, the Hessian fly, and the bark louse, we shall find that so far from feeding largely upon any of these insects, birds scarcely touch them. The Hessian fly is too small to be sought after by birds as a means of subsistence; although a similar insect, the wheat midge, is stated

by Dr. Fitch to be sometimes devoured to a considerable extent, whilst in the larva state, by the black-capped yellow bird, or American goldfinch. The bark-louse is still more minute, besides being protected by a scale which is scarcely distinguishable from the bark of the tree. The curculio is also probably protected, to a great extent, from destruction by birds, by its resemblance to the small knots and buds on the plum and peach trees. It is true, nature has given to birds very sharp eyes to enable them to detect their insect prey, but it is equally true that she has also endowed insects with the power of mimicry, apparently for the express purpose of protecting them from their feathered enemies. And in point of fact, I believe birds have not been known to frequent, in increased numbers, the plum and peach orchards of the South, for the purpose of feeding upon the curculios with which they are so abundantly infested. Myriads of borers are undoubtedly destroyed by woodpeckers, especially those which live under the bark, or in rotten wood; but the worst of them, like the round-headed borer of the apple tree, penetrate so deeply into the solid wood, at least in the later stages of their existence, that even the woodpeckers cannot reach them. With respect to the chinch bug and the Colorado beetle, they seem to be absolutely repugnant to all kinds of birds, with perhaps a few occasional exceptions, which, however, are not very well authenticated.

It would be interesting, did time permit, to compare with the inefficacy of birds in combating some of the more prolific and injurious species of insects, the extensive destruction of many of these species by the natural enemies in their own class, and especially by the parasitic insects. These creatures are so minute that to all ordinary observation they may be said to be invisible, and therefore their agency is almost unknown, except to professed entomologists, and even they have probably as yet formed no adequate conception of the extent of their operations. But there are many cases on record where some destructive insect has suddenly disappeared without obvious cause, and upon examination every remnant of them is found to be infested by one or more of these internal parasites. But these, also, have their preferences in the selection of their foster-parents, and seem to be especially addicted to the larvæ of the Lepidoptera. Striking instances have been known of the wholesale destruction of the army worm, the tent caterpillar of the forest, and the larvæ of the tussock moth in this manner. But there are some of our most destructive insects, of which the chinch bug is a notorious example, which are almost completely exempt from damage by natural enemies of any kind, and the only sure remedy which is sometimes left to us in such cases is the final one of abandoning for a time the crops upon which they chiefly subsist.

Here, too, would be the proper place to introduce a consideration of a question which has been sometimes raised, whether birds may not do a great deal of harm by destroying indiscriminately the beneficial insects, both predaceous and parasitic. The argument is this: that many of the insects destroyed by birds are infested by internal parasites, often many in number, each one of which, when arrived at maturity, would be instrumental in destroying many more, and therefore that in devouring these infested individuals, birds destroy many more of our friends than of our enemies. This, like many other plausible arguments, shows its own fallacy by proving too much. If birds do more harm than good by destroying parasitized insects, then so do we, and we should abstain from killing all kinds of noxious insects for the same reason. This position assumes that the class of insects contains within itself a sufficient

system of checks and balances to keep its species within proper bounds; and if the argument be made of general application, it excludes the whole series of insectivorous birds from any normal or useful part in the economy of nature.

It would also be an interesting inquiry respecting the different classes of agents for keeping insects in check, namely, the insectivorous birds, the predaceous insects, and the parasitic insects, whether they occupy, to any considerable extent, different and distinct fields of operation, and whether, therefore, the work of one class may be said to be the complement of that of the others. That this is true to a certain extent there can be no doubt, but to how great an extent, it would require much time and investigation to determine. The following statements may help to elucidate the subject.

Birds seem to be the natural antagonists of such insects as are exposed to view, or which are but slightly concealed, whilst those which are deeply hidden in the trunks of trees, in fruits, in the earth, or in the water, for the most part escape them. But it is important to bear in mind that what may be called exposed insects, embraces not only the superficial larva, such as the leaf-eating and the leaf-rolling caterpillars, but it includes almost all kinds of insects in their perfect or winged state. The crops of small birds are often found to contain fragments of the hard wing-covers and legs of beetles. Those birds which spend most of their time on the wing, like the night-hawks, must depend almost wholly upon winged insects for subsistence. Swallows are often seen skimming over the surface of ponds in search for the newly emerged aquatic Neuroptera. And the fly-catchers capture most of their prey upon the wing. On the contrary, we know that insects in their perfect or imago state are rarely attacked by either predaceous or parasitic insects. They are either too hard to be injured by them, or too active to be caught by them. It is therefore in their larva state that insects are so extensively destroyed by the predaceous and parasitic species of their own class. But like all general rules this has its exceptions. A few of the larger and more active carnivorous insects, such as the dragon-flies, capture their prey on the wing, in a manner very similar to that of the fly-catching birds. A few cases, also, are on record of the parasitic ichneumon-flies being known to emerge from the bodies of mature beetles. (Westwood, II., pp. 142-3). But these instances are so rare that it is reasonable to suppose that the parasites did not attack the adult insects, but that they deposited their eggs in the bodies of their larvæ, but at so late a period that they did not come to maturity till after their foster-parents had passed through their transformations.

But this exemption of imagos from parasites does not seem to include those outside of the hymenopterous order. The larvæ of the parasitic beetles (*Meloe*, *Sitaris*, *Ripiphorus*, and *Stylops*), are found in the bodies of adult bees and wasps; and many of the two-winged Tachinæ are known to deposit their eggs upon the bodies of beetles. Many persons are familiar with the eggs of these flies on the backs of potato beetles.

Mr. Geo. M. Dodge, of Bureau county, wrote to me in 1872: "More than half of the Colorado potato beetles that I have found on our potatoes this fall have had the eggs of some kind of Tachina on their wing covers, sometimes as many as seven or eight on one beetle." Mr. Dodge also found similar eggs on the *Lytta marginata*, one of the blistering beetles which are injurious to potatoes. A European author, Leon Dufour, has described a species of Tachina which he reared from the larva state, and which he found in one of the Tortoise beetles; and another which he reared from one of the bugs proper.

Pentatoma grisea. And Dr. Shimer, of Mount Carroll, has obtained a small species of the same family from the striped cucumber beetle, *Diabrotica vittata*. But these coleopterous and dipterous parasites, though considerably numerous in the aggregate, are relatively small in numbers when compared with the almost countless hosts of hymenopterous parasites, the Ichneumonidæ, the Chalcididæ, and the Proctotrupidæ; and from these we have reason to believe that insects in their imago state are for the most part exempt. On the other hand, the subterranean larvæ which, in a great measure, are out of the reach of birds, are extensively preyed upon by the numerous kinds of ground beetles and their larvæ, which occupy the same territory with themselves.

But the prosecution of this department would carry us too far from our main topic, and we pass on, therefore, to consider another branch of the subject.

We have stated above that the extensive cultivation of certain fruits and grains has been followed by a very natural consequence, but one which no one probably foresaw, namely, the more than co-extensive increase of some of those species of insects which naturally feed upon them. To such an excess has this multiplication of certain kinds of insects gone, that the production of some of our most valuable crops has been rendered, in some seasons and localities, either a partial or a total failure.

In treating of birds, the interesting question arises whether there have been any similar instances of the excessive increase of the granivorous and frugivorous birds. The consideration of this question will bring us directly to the subject of the most immediate practical importance, whether any species of birds are actually found to be so numerous, or so injurious, as to require their destruction, and whether such destruction is, upon the whole, advisable.

Some birds, like some insects, are remarkably prolific, though why they should be more so than other species, closely related to them, it is impossible for us to tell. There are insects so nearly allied to the potato beetle, and to the chinch bug, that it requires pretty close observation to tell them apart, and yet they are only known as comparatively rare insects. So the wild pigeons sometimes congregate so as to break down the branches of forest trees by their weight; whilst the nearly-related ground-dove is only seen in pairs, here and there, gleaning their subsistence by the road-side. The blackbirds and rice-buntings are also often seen in very large flocks; but the corn and rice crops upon which they depredate are so abundant that these birds do not make any very serious impression upon them. How trifling is the amount of damage caused by these most prolific of birds, when compared with that effected by some of the more destructive species of noxious insects. Two obvious reasons occur to us why birds do not go on, like insects, increasing almost indefinitely: First, that birds rarely lay more than four or five eggs, whilst insects often lay four or five hundred; and secondly, insects lie dormant through the winter months, and require no food, whilst birds have to migrate to different localities, and run all the risks of an insufficient supply of food, when removed from the abundant harvest among which they have been reared.

But it is more particularly the fruit-eating birds which have excited the apprehensions of the horticulturists, especially those which feed upon the smaller and more delicate fruits, such as cherries, grapes, and the several kinds of berries; a class of fruits which are not usually raised in so great abundance but that the depredations of birds upon them are readily noticed, and sometimes seriously felt.

The number of species of birds thus annoying to the horticulturist is fortunately very small. The only ones, I believe, which require to be specified are the Baltimore oriole, the cat-bird, the cherry-bird, or cedar-bird, and the robin; including, also, in a lesser degree, the blue jay, and the brown thrush; and if we take into account those which damage the field crops, we must include the crow and the blackbirds.

To these must be added another species of unenviable reputation, but which does not come into either the grain-eating or the fruit-eating class; I refer to the yellow-bellied woodpecker, commonly known as the sap-sucker. The food of this bird is usually the tender inner bark and cambium of trees, but it also occasionally eats insects. Dr. P. R. Hoy, of Racine, who read an interesting paper upon this bird at the annual meeting of the State Horticultural Society, at Chicago, in December, 1861, stated that he had opened many of these birds, and whilst he generally found their stomachs more or less filled with cambium, he also found a few small beetles; and an acquaintance of mine, who dissected one of these birds in the spring of 1873, found a solitary ant in its crop. As the woody substance upon which these birds feed must be much more tender and available at some seasons of the year than at others, it is very probable that if we could follow the course of these birds through the whole year, we would find that at some seasons insects constitute a considerable part of their fare.

How far the punctures of these birds injure the trees is yet a disputed question. It seems to be the general impression that they are seriously detrimental, and Dr. Hoy confirms this opinion. On the contrary, Alexander Wilson, the ornithologist, records that he examined many trees, for the purpose of determining this point, and though many of them were abundantly punctured, he could not perceive that any of them were injured, and some of them appeared to be remarkably flourishing. And I have myself seen apple trees riddled all over with the holes made by these birds, and yet full of luxuriant foliage. It seems to me, therefore, pretty well established that they do not ordinarily injure trees in this way to any appreciable extent, though it is possible they may sometimes do so in extreme or peculiar cases. There is one way, however, in which they sometimes effect a very serious damage, and that is by girdling and killing the leading shoot of ornamental trees, especially the evergreens, and thus preventing their symmetrical development. But whatever may be the amount of injury committed by these birds, they must be dealt with upon the same general principles which govern the treatment of other injurious species, and to which we shall refer in the sequel.

The list of objectionable birds, small as it is, may properly be divided into two classes; those which are only annoying or troublesome, and those which are seriously injurious. The latter class embraces pre-eminently the first two birds on the list, the Baltimore oriole, or golden robin, and the cat-bird; and these two birds are thus signalized, not so much for what they devour, as for their pernicious habit of pecking into and spoiling a great deal more fruit than they require for food; a practice which we have had occasion to notice but little, here at the North, but which is said to be a cause of serious damage in the fruit regions farther south.

With respect to the first class, or those which are merely annoying, or slightly injurious, the shooting or otherwise destroying them can not be justly regarded as otherwise than wanton cruelty. Their beauty, their songs, the animation they give to the landscape, the general harmlessness of their characters, and, finally, their undoubted usefulness during the greater part of the year, ought to insure them from harm.

But what course shall we take with regard to those birds which, either from their numbers or their peculiar propensities, are seriously detrimental to our interests? Supposing that it has been found, or that it may hereafter be found, that, owing to the depredations of certain birds, it is impossible to raise some one or more of our standard fruits, or other crops, there can be no doubt that the species of birds causing this damage would have to be placed in the same category with noxious insects. It would be true of both, that, though useful in the general economy of nature, their injuriousness had come to surpass their usefulness, and their numbers might, therefore, require to be diminished. But there are some ardent admirers of birds who can not bring themselves to admit that, in any case which will be likely to arise, it will become either desirable or safe to destroy any considerable number of their favorites; and they cite, in corroboration of their position, those cases which are on record in some of the European countries where, at certain times, the practice of killing small birds has extensively prevailed; and where, in consequence, the country has been overrun by destructive insects, and to such an extent that the national authorities have been compelled to interfere, and not only forbid the killing of small birds, under severe penalties, but have, in some instances, taken measures to re-introduce them from neighboring countries.

Such historical facts as these furnish an admirable proof of the general utility of birds, and of the folly, as well as the cruelty, of their indiscriminate destruction; but they constitute no argument against the occasional diminution of particular species, should this become necessary. The killing of small birds in some parts of Europe, especially Germany and Italy, has been done by the poorer class of peasantry, for the purpose of supplying their families with a small pittance of animal food, which they were unable otherwise to procure, and the destruction of birds by them has, therefore, been general and indiscriminate; whereas, in abating the damage done by birds to the farmer and the horticulturist, it is not expected to be necessary to wage warfare upon but a few species, and that these will require to be diminished only, and not exterminated.

It must be a source of gratification to the lovers of birds, and this embraces all of us in a greater or less degree, that the number which it is supposed it may become necessary to reduce is so small, being limited to less than half a dozen species; and I do not wish to be understood as advocating the destruction even of these. My object is to present some of the leading facts and considerations which should govern our conduct in this matter, and with these general principles in our minds, I believe it will be safe to leave the bird question to the good judgment and good feeling of those who are more especially interested in it.

Mr. Wier—The sap-sucker is not a true woodpecker. The hairy woodpecker is the only practical enemy to the round-headed apple tree borer, and is therefore one of the most useful of birds, while the sap-sucker, which so nearly resembles it, is one of our enemies.

Mr. Powell said he had some Scotch pines which were badly injured by the sap-suckers, but had stopped their work by wrapping cloths around the bodies of trees where they worked; also had frightened them away by hanging white cloths in the evergreens.

Mr. Galusha described the sap-sucker as a brown bird, about half the size of the robin or the common red-headed woodpecker, with a yellow breast, the males having a small tuft of red on top of the head. This bird is quiet in its

work, seldom making a noise except a single chirp when it flits away from the tree, where it has been filling its craw with sweet juices of the pine. He said it is not an insectivorous bird, as its tongue is not barbed like that of proper woodpeckers. He regarded it as a great nuisance among a plantation of Austrian and Scotch pines, though it seldom did serious damage to deciduous trees. The work done in spring, before its molting season, and while the sap of the trees is in vigorous circulation, does not seem to kill the trees; but that done later, when the parent birds return from the forest and bring their whole family with them, proves most serious, and often fatal. He had known many fine Austrian pines utterly ruined by these little girdlers. The plan for capturing them was described as follows: "Take a shot-gun loaded with fine shot and station yourself, early in the morning,—say about sunrise,—near the tree which the birds have lately worked upon, and in plain sight of the little rings of fresh holes in the bark, and you will not have to wait long before this pretty little thief will come for its breakfast, as it eats from the dish made but a day or two previously, and usually digs out new cups for future use before leaving, unless stopped by the small shot aforesaid." He had saved the lives of several valuable Austrian pines in this way, with the loss of but a few birds and a very small amount of ammunition.

AGGRESSIVE PARASITISM OF FUNGI.

BY T. J. BURRILL, PROFESSOR OF HORTICULTURE IN THE ILLINOIS
INDUSTRIAL UNIVERSITY.

It long has been and still continues to be a disputed question among horticulturists and botanists, regarding diseases of plants accompanied by fungous growth, as to whether the latter is the *cause* or the *result* of the disease. Like other questions, open to protracted debate, there are, undoubtedly, two sides to this one. Cases are not all alike. Sometimes disease and even death, attributed to this cause, take place before any evidence of fungi make their appearance, while under other circumstances the reverse may be true. But a greater source of difference of opinion comes from the want of fully understanding the habits and laws of growth in general of both kinds of plants, the afflicted and the afflicting, and in particular the special habits and laws of growth of the individual species concerned. As an illustration from the animal world we may take two snakes that look very much alike, and that, to common observers, would be pronounced to be the same, while their bite upon these very observers would produce strikingly different effects. One is harmless, the other deadly poisonous. The illustration, however, does not end here. The poisonous nature of one of the reptiles is proved only so far as experiment has been tried; for while there is the above difference between them in regard to their effects upon man, their bite may be in no wise different in its effects upon swine. It is even possible that the harmless and poisonous natures may be exchanged in regard to some animals bitten by them. Thus the question becomes a complicated one, and can only be settled by having at command all the facts in the case. Even upon the same animals the effects may not always be the same, for the conditions of the system change in such manner that disease is caused at one time, and at another the influence is entirely thrown off. Now, knowing these and similar things to be true of animals, does it not seem probable that like complications may be found among plants? If it is admitted that much close observation is necessary in order to arrive at truthful conclusions among beings which are well known, and whose actions are easily seen, what must follow as a necessity when we deal with comparatively unknown forms, whose workings are in secret, and of whose mysterious energies we know little or nothing? Is it a wonder that men should have disagreed about the habits and influences of living structures, too small to be seen at all by the unaided vision, and too subtle in their operations to be discovered except by skillful and laborious research? Such, however, are the most of the parasitic fungi. Thousands of these minute forms find lodgement upon a single leaf, yet their presence is unsuspected by

the cultivator, who wonders and worries over the sickly condition of his plants. By the aid of the microscope they may be seen and studied, but no one sees them bite, neither are poison sacks found at the base of horrid teeth, by which the mischief is accomplished. It is therefore necessary to patiently watch the effects of their growth in the special case at hand, as well as to know, as fully as possible, the general conditions and requirements of both the healthy and diseased states of all the organisms under consideration.

Now, in a general way, it is well known that the conditions of growth are very different between fungous and other plants. They seem to be the opposites of each other. With rare exceptions, all other plants are dependent upon light for their existence. Deprived of sunlight, they speedily perish. The potato, stored as it is with prepared material, sprouts in the cellar, but only attains a feeble, useless development, adding nothing to its substance. House plants, provided with the best soil, and receiving the best attention in other respects, fail utterly with the window curtains down. Even field crops languish in cloudy weather, when other conditions are best suited to their growth. How different with the fungi! Mushroom-rooms are splendidly grown in the catacombs of Paris,—those underground caverns, where darkness perpetually reigns. Moulds luxuriate in the darkest cellar, perfecting their fruit without a ray from the sun's sustaining disc. Thieves and evil-doers excepted, the fungi are the only living beings that could consistently rejoice over the entire withdrawal of light from the earth. Other plants take from the atmosphere carbonic acid, and restore the oxygen, but fungi, like animals, take oxygen, and pour forth carbonic acid. This fact alone shows how radically different the principles of nutrition are in the fungous and the other plants. The prime office of vegetation is to build up organic products from inorganic elements, and plants alone possess the power of doing this. Animals consume these products, combustion and decay disorganize and reduce them to their original status. But fungi form the exception among plants, and, like these last, are altogether destructive. Incapable of feeding themselves from the inorganic earth and air, they prey upon the elaborated products from these materials, accumulated by their accommodating relatives in the vegetable kingdom. Such are some of the peculiar characteristics of the fungi as a class. Of these there is no question as to their truthfulness; but, as indicated above, the disputed point is whether or not any of the fungi are capable of attacking, feeding upon, and so, perhaps, destroying other plants previously in healthy, vigorous condition, or, in other words, whether the fungous parasites really *cause*, and are not the results of, disease.

I have said the special province of vegetation was to take from the inorganic elements and manufacture the organic. Let it be noted, however, that this implies more than simple chemical combinations. The vital power of the plant, aided by sunlight, rends asunder these combinations, overmasters the usual chemical affinities, and, in spite of their attractions, builds up its tissues. But the moment its life is gone, these affinities again triumph, and decomposition begins. Now, fungi hasten the ruin, apparently lending their life force to augment the power of the natural attractions of the particles for each other, as wolves follow the herds of buffaloes, to make quick work with the lame and weakened ones that linger behind. The vital force stands guard alone against the destroyers. Is it not likely that it, too, shall at times be defeated? Remembering that the parasite has, as well as the host, this mysterious endowment of life, may not its forces, in many engagements, sometimes

outmarshal those it seeks to destroy and rob of their treasures? Advantages are seized upon, favorable conditions for the attack are improved, or in equal ordinary combat swift and sure destruction follows the dread onslaught of the parasitic hordes.

Abundant evidence supports this idea. Numerous well-attested cases are at hand, so that to one who examines carefully, and is prepared to properly estimate the evidence before him, the conclusion is irresistible that the fungi do *cause* disease in structures, which, but for their attacks, are healthy and vigorous. When weakened by any cause, of course there is the more danger to the debilitated party. In damp, dark weather, unfavorable to general vegetation, but well suited to fungous growth, the latter has the advantage, and is not slow, as is well known, to improve the opportunity. Subject to some of the varying conditions referred to in the first part of this paper, the following are examples of diseases produced by fungous plants. In these cases, as in hosts of others, it can be readily demonstrated that the parasites are the cause, not simply the accompaniments, of the injury.

Bunt, or Smut in Wheat, showing itself in the grain, and reducing the whole interior to a black, pasty, or powdery mass. This is caused by the spores of *Tilletia caries* being sown with the seed, and though not showing its effects, the plant really grows with the wheat from the beginning. The practice of washing the seed in brine, and afterwards drying it with lime, is an almost effectual preventive. Simple washing with water, or thoroughly blowing in the windmill, must aid. *Rust* of the stems and leaves of small grains generally, but of wheat especially, is due to *Puccinia graminis*, whose spores form the rusty powder which is sometimes so abundant about harvest time, staining the workmen's clothing. Another kind of spores are afterward produced, which are nearly black. These last stick to the straw during the winter, and doubtless constitute the germs of the next year's generation. Washing the seed can do no good in this case, while carefully carrying away the straw, burning the stubble, and cleaning the corners of fences, etc., of all grass-like productions, may prevent the attack. The full history of this parasite has not been made out, but every farmer must have noticed that its growth depends very largely upon the weather. Hot sunshine, broken at intervals by showers of rain, load the air with vapor, rendering the atmosphere "muggy" and unsuited to ordinary vegetable growth, but well adapted to the *Puccinia*, which quickly destroys the crop. It was present before, but not active enough to become very injurious.

The Rot of some stone fruits, causing them to shrivel upon the tree, and soon covering them with a gray mass of dust, is the sure result of *Oidium* (Torula) *fructigenum*. Any one may satisfy himself as to the action of this fungus by simply wetting or puncturing slightly the surface of a healthy fruit, and placing upon it some of the dust from an affected peach. The experiment is almost sure to succeed, though occasionally, in dry, clear weather, it may miss. Examining with the microscope, twenty-four hours after the sowing, the substance of the fruit, the threads of the fungus, will be found in abundance, and in two more days the unaided eye easily detects the mischievous work. Theoretically and practically the prevention of this disease is to ward off, as far as possible, the insects which puncture the fruit, and to remove cautiously every rotting one as soon as discovered. These may be buried in the ground or burned.

The Fire Blight of the pear needs more study, but the *Leaf Blight* of pear

seedlings certainly, and large trees probably, is from a fungus whose name is unknown to me, but which is similar in habit to the *Puccinia* above mentioned. Beyond what is commonly known, however, there is no certain remedy. These pear diseases shall receive attention hereafter.

Potatoes rot from several causes; but that which causes at times such widespread injury to the crop is *Botrytis* (*Peronospora*) *infestous*,—a white mould. This first attacks the leaves, then follows down the stem, and finally destroys the tuber. Some varieties are more liable to suffer than others, and as in the wheat, much is due to the weather.

The *cutting-bed fungus*, the plague of the propagator of plants, is a species of *Stilburn*; at least this is true in the green-house of the Industrial University. I believe the species we have is undescribed. The cuttings “damp off,” as the gardeners say,—a single day or night often witnessing the death of hundreds of previously healthy slips. The threads of the fungus spread with astonishing rapidity through the damp sand, and, as if by magic touch, cause the stems and leaves to decay. Fortunately, this can be controlled by reducing the temperature of the bed, and by attention to the light admitted. From experiment thus far, it seems the latter is really the important thing, as a well lighted and ventilated bed is rarely attacked.

Hundreds of other instances like the above force themselves upon our observation. Probably no plant or animal, living or dead, really escapes. We ourselves become the prey of these offending creatures; and before we shall fully understand “all the ills that flesh is heir to,” we shall be compelled to give them more study, more thorough investigation.

STATISTICS OF ORCHARD PRODUCTS FOR MICHIGAN.

SHOWING THE VALUE OF ORCHARD PRODUCTS, THE NUMBER OF GALLONS OF WINE, AND THE VALUE OF THE PRODUCTS OF MARKET GARDENS, FOR THE YEAR ENDING JUNE 1, 1870.

[NOTE.—The Statistics of Orchard Products of the State of Michigan were ordered published by the Pomological Society, at the meeting held at South Haven, in September, 1873. They are collected from the Ninth Census of the United States, as compiled in the State Department of Michigan, under the direction of the Secretary of State. They are published for several reasons:

1st. They establish the fact that the fruit production of the State is important and valuable, and that this industry needs to be cherished as ranking among the first in the State. The value of the orchard products for the year ending June, 1870, for the whole State, was \$3,537,238,—over three and one-half million dollars. The value of the wool crop, 8,864,896 pounds at 42 cents per pound, was but little larger. It must be remembered that the statistics show only the value of the *products* for one year,—not the value of the orchards or of the orchard lands.

2d. These statistics were ordered published that their *incompleteness* might become more apparent to legislators and to the people. They do not attempt to show the value of orchards, or lands planted to orchards,—or the extent or number of acres of such in the State. There is no reference to nursery lands, or the value of such. There is no showing of the number of acres planted, for instance, to vineyards. The number of gallons of wine is attempted to be given, 22,015 gallons, but the number of pounds of grapes produced is not attempted. The number of bushels or barrels of apples; the number of baskets of peaches and pears; the number of baskets of small fruits; the amount of dried fruit—are items that are not found in these statistics. Why not leave out wheat and oats, potatoes, butter and cheese, just as well as apples, peaches and grapes? It is certainly very desirable that the complete statistics of the orchard products of the State be gathered by the next State Census; not only of the products of orchards, but of the number of acres of land devoted to fruit culture, that the amount of capital invested in this industry may be approximated.]

STATE AND COUNTIES.	Value of Orchard Products.	Wine. (Gallons.)	Value of Products of Market Gardens.
State.....	\$3,537,278	22,015	\$334,618
Alcona.....			
Allegan.....	75,315	318	12,581
Antrim.....	155	160	150
Barry.....	57,355		
Bay.....	1,188	800	9,954
Benzie.....	60		555
Berrien.....	561,641	5,633	7,914

STATE AND COUNTIES.	Value of Orchard Products.	Wine. (Gallons.)	Value of Products of Market Gardens.
Branch.....	\$90,679	313	\$3,113
Calhoun.....	71,264	53	6,732
Cass.....	109,689	162	875
Charlevoix.....	15	-----	-----
Cheboygan.....	35	-----	958
Chippewa.....	-----	40	-----
Clinton.....	66,663	95	1,029
Eaton.....	65,607	212	2,071
Emmet.....	983	270	-----
Genesee.....	96,224	5,692	8,014
Grand Traverse.....	4,940	-----	5,289
Gratiot.....	9,026	5	120
Hillsdale.....	133,346	75	420
Houghton.....	-----	-----	1,200
Huron.....	1,957	25	4,188
Ingham.....	64,951	81	7,304
Ionia.....	84,729	131	878
Isabella.....	655	-----	-----
Jackson.....	155,264	-----	11,040
Kalamazoo.....	99,063	10	7,912
Kent.....	141,849	248	12,483
Lapeer.....	59,634	58	148
Leelanaw.....	30	-----	105
Lenawee.....	363,828	322	35,195
Livingston.....	64,184	4	1,745
Mackinac.....	42	-----	190
Macomb.....	81,010	300	1,625
Manistee.....	-----	-----	7,798
Marquette.....	-----	-----	700
Mason.....	630	-----	1,645
Midland.....	400	41	480
Missaukee.....	-----	-----	120
Monroe.....	110,021	4,498	5,929
Montcalm.....	15,079	9	427
Muskegon.....	9,348	100	11,151
Newaygo.....	6,961	136	-----
Oakland.....	205,804	315	520
Oceana.....	1,170	12	450
Ontonagon.....	715	60	355
Osceola.....	12	-----	-----
Ottawa.....	48,360	552	6,390
Saginaw.....	4,664	135	2,635
Sanilac.....	6,340	-----	2,339
Shiawassee.....	64,104	68	14
St. Clair.....	28,962	13	3,222
St. Joseph.....	72,055	114	2,304
Tuscola.....	15,919	-----	8,442
Van Buren.....	135,910	744	6,105
Washtenaw.....	209,650	28	11,579
Wayne.....	139,793	243	114,120
Wexford.....	-----	-----	4,105
Unorganized Counties.....	-----	-----	120

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
ALCONA COUNTY.....			
ALLEGAN COUNTY.....	\$75,315	318	\$12,581
Allegan.....	4,994		929
Casco.....	1,498		630
Cheshire.....	4,045		122
Clyde.....	270		130
Dorr.....	2,514	3	808
Fillmore.....	1,626		218
Ganges.....	6,399		1,680
Gun Plain.....	5,032	11	
Heath.....	1,154	38	788
Hopkins.....	3,666	35	2,027
Laketown.....	450		150
Lee.....			60
Leighton.....	4,075	8	1,330
Manlius.....	3,785	10	880
Martin.....	3,040	3	
Monterey.....	4,343	11	438
Otsego.....	5,383	3	
Overeisel.....	637	5	80
Pine Plain.....	280		110
Salem.....	1,080		454
Saugatuck.....	2,846	128	370
Trowbridge.....	10,424	9	
Watson.....	4,495		
Wayland.....	3,259	54	1,377
ANTRIM COUNTY.....	155	160	150
Elk Rapids.....	80		150
Helena.....	50		
Milton.....	25	160	
BARRY COUNTY.....	57,355	19	
Assyria.....	3,328		
Baltimore.....	1,454		
Barry.....	4,562		
Carlton.....	4,917		
Castleton.....	3,003		
Hastings.....	1,810		
Hope.....	2,260		
Irving.....	3,192		
Johnstown.....	5,455		
Maple Grove.....	3,606		
Orangeville.....	3,310		
Prairieville.....	4,165		
Rutland.....	3,255		
Thornapple.....	4,532		
Woodland.....	6,447	19	
Yankee Springs.....	2,059		
BAY COUNTY.....	1,188	800	9,954
Bangor.....	65		793
Bay City.....			3,400
Hampton.....	763		3,063
Kawkawlin.....	65		
Monitor.....	75		2,010
Portsmouth.....	210	800	688
Williams.....	10		

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
BENZIE COUNTY	\$60	-----	\$555
Benzonia.....	60	-----	225
Crystal Lake.....	-----	-----	155
Gilmore.....	-----	-----	100
Joyfield.....	-----	-----	75
Platte.....	-----	-----	-----
BERRIEN COUNTY	561,641	5,633	7,914
Bainbridge.....	23,669	-----	255
Benton.....	207,865	1,907	2,545
Berrien.....	9,300	6	-----
Bertrand.....	8,670	7	-----
Buchanan.....	3,524	24	450
Chickaming.....	2,790	-----	-----
Galien.....	1,914	5	269
Hagar.....	21,810	-----	-----
Lake.....	4,990	-----	-----
Lincoln.....	72,460	2,826	362
New Buffalo.....	1,766	-----	300
Niles.....	7,157	7	-----
Niles City.....	950	36	2,050
Oronoko.....	11,820	28	620
Pipestone.....	6,297	-----	-----
Royalton.....	31,110	-----	-----
Sodus.....	16,187	-----	-----
St. Joseph.....	108,210	765	635
Three Oaks.....	1,220	-----	-----
Watervliet.....	16,480	-----	-----
Weesaw.....	3,452	22	428
BRANCH COUNTY	90,679	313	3,113
Algansee.....	7,110	2	-----
Batavia.....	2,040	-----	-----
Bethel.....	4,638	-----	10
Bronson.....	4,590	-----	-----
Butler.....	6,445	33	-----
California.....	2,310	-----	-----
Coldwater.....	9,657	195	723
Coldwater City.....	1,450	-----	1,495
1st Ward.....	360	-----	10
2d Ward.....	655	-----	1,485
3d Ward.....	185	-----	-----
4th Ward.....	250	-----	-----
Gilead.....	2,502	-----	-----
Girard.....	7,552	64	120
Kinderhook.....	2,602	-----	-----
Mattison.....	5,779	-----	30
Noble.....	1,562	-----	-----
Ovid.....	7,765	-----	18
Quincy.....	13,834	19	317
Sherwood.....	4,547	-----	285
Union.....	6,296	-----	115
CALHOUN COUNTY	71,264	53	6,732
Albion.....	5,775	-----	-----
Athens.....	1,400	-----	-----
Battle Creek.....	3,725	-----	-----

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
CALHOUN COUNTY (Continued).			
Battle Creek City	1,800	-----	5,180
Bedford	6,950	-----	10
Burlington	205	-----	-----
Clarence	3,475	38	-----
Clarendon	4,477	-----	-----
Convis	615	-----	575
Eckford	3,784	-----	-----
Emmet	1,927	-----	550
Fredonia	1,320	-----	-----
Homer	6,599	-----	-----
Lee	3,632	4	15
Leroy	4,440	-----	-----
Marengo	8,703	11	2
Marshall	3,522	-----	-----
Marshall City	115	-----	100
Newton	1,225	-----	-----
Pennfield	2,785	-----	150
Sheridan	4,025	-----	200
Tekonsha	765	-----	-----
CASS COUNTY	109,698	162	875
Calvin	10,039	12	50
Howard	4,916	16	65
Jefferson	6,613	40	-----
LaGrange	7,611	-----	50
Marcellus	3,715	-----	-----
Mason	9,049	16	-----
Milton	3,272	5	-----
Newburg	5,206	-----	-----
Ontwa	3,894	59	-----
Penn	11,230	-----	-----
Pokagon	4,341	12	460
Porter	17,157	2	250
Silver Creek	7,417	-----	-----
Volinia	8,390	-----	-----
Wayne	6,856	-----	-----
CHARLEVOIX COUNTY	15	-----	-----
Eveline	15	-----	-----
CHEBOYGAN COUNTY	35	-----	958
Burt	-----	-----	50
Duncan	25	-----	413
Inverness	10	-----	495
CHIPPEWA COUNTY	-----	40	-----
Sugar Island	-----	40	-----
CLINTON COUNTY	66,663	95	1,029
Bath	2,040	-----	-----
Bengal	2,475	3	283
Bingham	4,536	14	185
Dallas	2,740	-----	9
DeWitt	5,938	-----	-----
Duplain	6,600	-----	-----
Eagle	5,970	-----	-----

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
CLINTON COUNTY (Continued).			
Essex.....	\$4,893		
Greenbush.....	5,088		\$105
Lebanon.....	3,163	76	122
Olive.....	3,590		25
Ovid.....	3,653	2	200
Riley.....	3,376		100
Victor.....	3,311		
Watertown.....	5,595		
Westphalia.....	3,695		
EATON COUNTY.			
Bellevue.....	65,607	212	2,071
Benton.....	4,695		300
Brockfield.....	3,381		10
Brookfield.....	1,346		118
Carmel.....	3,895		
Chester.....	2,454		100
Delta.....	5,491	6	1,022
Eaton.....	5,092		300
Eaton Rapids.....	12,575	200	120
Kalamo.....	3,835		
Oneida.....	5,901		36
Roxand.....	3,165		
Sunfield.....	1,330		
Vermontville.....	2,553		
Walton.....	3,980		
Windsor.....	5,914	6	65
EMMET COUNTY.			
Bear Creek.....	983	270	
LaCroix.....	108		
LaCroix.....	588	270	
Little Traverse.....	287		
GENESEE COUNTY.			
Argentine.....	96,224	5,692	8,014
Atlas.....	5,195		
Burton.....	8,490		
Burton.....	4,878	24	3,872
Clayton.....	6,691		
Davison.....	2,790		300
Fenton.....	9,863	293	
Flint.....	4,100		
Flushing.....	6,854		350
Forest.....	2,200		570
Gaines.....	3,513		
Genesee.....	7,263	4,060	1,211
Grand Blanc.....	6,260		
Montrose.....	310	2	140
Mt. Morris.....	6,075	1,084	136
Mundy.....	4,432		815
Richfield.....	7,605	225	230
Thetford.....	4,400		50
Vienna.....	5,305	4	340
GRAND TRAVERSE COUNTY.			
Blair.....	4,940		5,289
East Bay.....	25		325
Grant.....	315		880
Long Lake.....			185
			85

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
GRAND TRAVERSE COUNTY <i>(Continued).</i>			
Mayfield			\$95
Paradise			475
Peninsula	\$3,610		1,484
Traverse	735		1,155
Whitewater	255		605
GRATIOT COUNTY	9,026	5	120
Arcada	684	3	
Bethany	127		
Elba	269		
Emerson	672		
Fulton	2,728		
Hamilton	90		
LaFayette	8		
Newark	824		
New Haven	432	2	
North Shade	771		
North Star	882		
Pine River	889		
Seville	245		
Summer	254		120
Washington	191		
Wheeler	20		
HILLSDALE COUNTY	133,346	75	420
Adams	18,400	10	300
Allen	14,680		
Amboy	475		
Cambria	7,555	25	40
Camden	3,247		
Fayette	6,890		
Hillsdale	9,476	7	
Jefferson	6,599	13	
Litchfield	13,075		5
Moscow	8,992		
Pittsford	9,148		
Ransom	3,586		
Reading	8,352		75
Scipio	6,480		
Somerset	3,946	20	
Wheatland	9,055		
Woodbridge	1,090		
Wright	2,300		
HOUGHTON COUNTY			1,200
Hancock			200
Huron			
Quincy			800
Schoolcraft			100
Webster			100
HURON COUNTY	1,957	25	4,188
Brookfield			268
Caseville		25	665
Colfax			227
Fair Haven			645
Grant		25	645

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
HURON COUNTY (Continued).			
Haven.....	\$150		
Lake.....			\$105
Port Austin.....	105		1,305
Sebewaing.....	1,627		220
Sigel.....			
Sheridan.....			108
Verona.....	50		
INGHAM COUNTY	64,951	81	7,304
Alaiedon.....		64	
Aurelius.....	6,817		150
Bunker Hill.....	3,815		
Delhi.....	4,995		
Ingham.....	6,407		
Lansing.....	3,314	3	856
Lansing City.....	932		1,890
1st Ward.....	673		577
2d Ward.....			1,200
3d Ward.....	250		27
4th Ward.....	9		86
Leroy.....	1,897		
Leslie.....	4,585		
Locke.....	2,654		
Meridian.....	6,180		3,679
Onondaga.....	5,241		
Stockbridge.....	4,700		
Vevay.....	3,307	14	
Wheatfield.....	1,345		
White Oak.....	5,257		
Williamstown.....	3,505		729
IONIA COUNTY	84,729	131	878
Berlin.....	4,917		
Boston.....	5,349		
Campbell.....	1,293		
Danby.....	2,780		25
Easton.....	6,045		
Ionia.....	5,364		554
Keene.....	5,845		
Lyons.....	7,080		
North Plains.....	7,157	51	
Odessa.....	520		
Orange.....	5,539	4	50
Orleans.....	4,730		
Otisco.....	8,423		
Portland.....	7,835	27	199
Ronald.....	9,558	49	
Sebewa.....	2,294		50
ISABELLA COUNTY	655		
Broomfield.....	10		
Chippewa.....	95		
Coe.....	510		
Fremont.....	5		
Rolland.....	5		
Union.....	30		

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
JACKSON COUNTY.....	\$155,264		\$11,040
Blackman.....	9,365		2,695
Brooklyn.....	6,125		
Columbia.....	5,420		
Concord.....	12,130		1,415
Grass Lake.....	12,655		
Hanover.....	3,307		
Henrietta.....	6,075		
Jackson City.....	2,615		2,470
Leoni.....	12,740		500
KALAMAZOO COUNTY.....	99,063	10	7,912
Alamo.....	1,075		
Brady.....	942		70
Charleston.....	10,870		215
Climax.....	9,860		175
Comstock.....	10,150		2
Cooper.....	4,823		
Kalamazoo.....	15,120		6,795
Oshtemo.....	4,710		500
Pavilion.....	9,875		5
Portage.....	2,145		
Prairie Ronde.....	2,858		
Richland.....	7,565		150
Ross.....	7,400	10	
Schoolcraft.....	5,320		
Texas.....	2,240		
Wakeshma.....	4,110		
KENT COUNTY.....	141,849	248	12,483
Ada.....	8,198		5
Algoma.....	977		
Alpine.....	12,932		400
Bowne.....	3,371		
Byron.....	3,530	4	
Caledonia.....	1,891		
Cannon.....	8,413		50
Cascade.....	7,158		
Courtland.....	5,992		
Gaines.....	8,654		
Grand Rapids.....	12,020		1,552
Grand Rapids City.....	1,125		1,580
1st Ward.....	150		750
2d Ward.....	175		
3d Ward.....			830
5th Ward.....	800		
Grattan.....	6,898	80	15
Lowell.....	3,869	150	150
Nelson.....	1,393		214
Oakfield.....	4,057		
Paris.....	7,025		6,512
Plainfield.....	8,056		
Solon.....	655		
Sparta.....	6,909		
Spencer.....	310		5
Tyrone.....	1,245		100
Vergennes.....	12,429		40

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
KENT COUNTY (<i>Continued</i>).			
Walker	\$11,937		\$1,700
Wyoming	2,805	14	160
LAPEER COUNTY	59,634	58	148
Almont	9,900		130
Arcadia	477		
Attica	3,709		
Burlington	49	3	
Burnside	25		
Dryden	8,427		
Elba	3,297		
Goodland	265		
Hadley	9,138		15
Imlay	1,239	55	
Lapeer	6,721		
Lapeer City	975		
1st Ward	200		
2d Ward	225		
3d Ward	350		
4th Ward	200		
Marathon	2,287		
Mayfield	3,068		
Metamora	7,860		
North Branch	25		
Oregon	2,112		3
Rich	60		
LEELANAW COUNTY	30		105
Elwood			105
Leelanaw	30		
LENAAWEE COUNTY	363,828	322	35,195
Adrian	12,090	35	560
Adrian City	1,155	5	1,360
2d Ward	30		20
3d Ward	960	5	200
4th Ward	165		1,140
Blissfield	5,085		79
Cambridge	16,590		
Clinton	12,790		
Deerfield	4,055		3,244
Dover	22,510		
Fairfield	11,747		40
Franklin	13,054		
Hudson	11,806		1,575
Macon	7,915		
Madison	10,673	25	2,398
Medina	12,202		
Ogden	3,719		
Palmyra	11,259		1,355
Raisin	12,218	8	12,604
Ridgeway	5,611		4,953
Riga	1,005	56	45
Rollin	15,863	37	115
Rome	17,696	156	77
Seneca	11,615		400
Tecumseh	5,985		350
Woodstock	15,030		40

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
LIVINGSTON COUNTY	\$64,184	4	\$1,745
Brighton.....	3,045	-----	-----
Choctah.....	3,075	4	575
Conway.....	5,132	-----	-----
Deerfield.....	3,394	-----	100
Genoa.....	4,850	-----	100
Green Oak.....	4,365	-----	40
Hamburg.....	4,670	-----	-----
Handy.....	2,877	-----	-----
Hartland.....	3,907	-----	100
Iosco.....	3,350	-----	-----
Marion.....	4,980	-----	-----
Osceola.....	5,515	-----	-----
Putnam.....	3,950	-----	-----
Tyrone.....	2,384	-----	400
Unadilla.....	5,210	-----	-----
MACKINAC COUNTY	42	-----	190
Holmes.....	-----	-----	20
Moran.....	10	-----	155
St. Ignace.....	32	-----	15
MACOMB COUNTY	81,010	300	1,625
Armada.....	3,222	5	-----
Bruce.....	8,032	180	1,050
Chesterfield.....	8,323	-----	-----
Clinton.....	8,337	-----	-----
Erin.....	2,715	-----	200
Harrison.....	2,430	-----	-----
Lenox.....	4,886	-----	-----
Macomb.....	6,670	7	-----
Ray.....	5,880	-----	-----
Richmond.....	4,070	-----	75
Shelby.....	8,708	-----	-----
Sterling.....	4,332	-----	-----
Warren.....	2,185	-----	300
Washington.....	11,220	114	-----
MANISTEE COUNTY	-----	-----	7,798
Arcadia.....	-----	-----	425
Bear Lake.....	-----	-----	2,138
Brown.....	-----	-----	1,405
Cleon.....	-----	-----	780
Manistee.....	-----	-----	180
Morrilla.....	-----	-----	1,245
Oneskama.....	-----	-----	430
Pleasanton.....	-----	-----	1,205
MARQUETTE COUNTY	-----	-----	700
Chocolay.....	-----	-----	700
MASON COUNTY	630	-----	1,645
Amber.....	-----	-----	385
Freesoil.....	-----	-----	450
Pere Marquette.....	250	-----	500
Riverton.....	-----	-----	110
Summit.....	380	-----	150
Victory.....	-----	-----	50

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
MIDLAND COUNTY.....	\$400	41	\$480
Homer.....	10		
Ingersoll.....	165	16	480
Jasper.....	25		
Midland.....	200	25	
MONROE COUNTY.....	110,021	4,498	5,929
Ash.....	4,648		
Bedford.....	14,580	29	1,980
Berlin.....	2,225		
Dundee.....	15,121		
Erie.....	6,762	36	1,102
Exeter.....	2,801		
Frenchtown.....	5,075	1,500	
Ida.....	4,200	10	57
La Salle.....	8,335	70	1,400
London.....	6,401		
Milan.....	3,385		
Monroe.....	5,543	74	1,230
Monroe City.....	1,895	2,770	50
1st Ward.....	230	900	
2d Ward.....	70	1,800	50
3d Ward.....	1,595	70	
Raisinville.....	9,335		10
Summerfield.....	7,220		
Whiteford.....	8,495	9	
MONTCALM COUNTY.....	15,079	9	427
Bloomer.....	1,851		265
Bushnell.....	3,002	4	
Cato.....	134		
Crystal.....	246	5	125
Day.....			25
Eureka.....	6,643		12
Fairplain.....	1,712		
Maple Valley.....	24		
Montcalm.....	1,055		
Pierson.....	302		
Reynolds.....	30		
Sidney.....	45		
Winfield.....	35		
MUSKEGON COUNTY.....	9,348	100	11,151
Blue Lake.....	10		540
Casenovia.....	3,459		360
Cedar Creek.....	117		150
Dalton.....			195
Eggleston.....	274		1,410
Fruitland.....	155		750
Laketon.....	240		1,795
Lovell.....	125		275
Moorland.....	582	100	20
Muskegon.....	80		500
Muskegon City.....			
2d Ward.....	600		600
Norton.....	726		1,301
Oceana.....	520		635

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
MUSKEGON COUNTY (<i>Continued</i>).			
Ravenna	\$1,797		\$1,275
White River	663		1,345
NEWAYGO COUNTY	6,961	136	
Ashland	1,730	8	
Barton	40		
Big Prairie	730	8	
Bridgeton	450	100	
Brooks	85	5	
Croton	910	12	
Dayton	1,396		
Denver	385		
Ensley	800		
Everett	125	3	
Sheridan	145		
Sherman	165		
OAKLAND COUNTY	265,804	315	520
Addison	712		
Avon	4,805		130
Bloomfield	17,279		
Brandon	405		75
Commerce	12,739		
Farmington	16,880	100	10
Groveland	17,022		
Highland	15,926		
Holly	4,070	4	
Independence	4,360		
Lyon	14,140		
Milford	12,335		
Novi	18,652		175
Oakland	3,785		
Orion	560		
Oxford	845		30
Pontiac	8,240	7	
Pontiac City	3,770		
Rose	3,195	2	
Royal Oak	2,895		
Southfield	1,990		
Springfield	3,291	58	
Troy	4,296		100
Waterford	7,850	101	
West Bloomfield	22,650		
White Lake	3,112	43	
OCEANA COUNTY	1,170	12	450
Clay Banks	100		100
Golden	150		
Hart	590	12	50
Shelby	150		50
Weare	180		250
ONTONAGON COUNTY	715	60	355
Ontonagon	715	50	355
Rockland		10	

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
OSCEOLA COUNTY.....	\$12		
Richmond.....	12		
OTTAWA COUNTY.....	48,360	552	\$6,390
Allendale.....	1,778		1,585
Blendon.....	766		
Chester.....	5,234		
Crockery.....	4,808		60
Georgetown.....	1,770		
Grand Haven.....	755	150	
Holland.....	5,531		
Jamestown.....	890		50
Olive.....	580	2	
Polkton.....	5,534		75
Robinson.....	735		
Spring Lake.....	585		1,306
Tallmadge.....	8,871		
Wright.....	7,580		3,314
Zeeland.....	3,443	400	
SAGINAW COUNTY.....	4,664	135	2,635
Blumfield.....	110		
Brady.....	225		
Bridgeport.....	1,305		200
Carrolton.....	40		
Chesaning.....	515		
Frankenmuth.....	305		
Kochville.....	665	40	30
Maple Grove.....	40		140
Richland.....	120		
Saginaw.....	1,129	90	1,608
Saginaw City.....	200		292
Spaulding.....	380		95
St. Charles.....	100		
Taymouth.....			270
Thomastown.....	275		
Tittabawassee.....	255	5	
SANILAC COUNTY.....	6,340		2,399
Argyle.....			50
Austin.....			36
Bridgehampton.....			100
Delaware.....	199		458
Forester.....	202		1,110
Tremont.....	250		
Greenleaf.....			165
Lexington.....	2,382		25
Marlette.....	10		
Marion.....			295
Minden.....	27		100
Sanilac.....	101		
Speaker.....	100		
Washington.....	30		
Watertown.....	80		
Worth.....	2,959		
SHIAWASSEE COUNTY.....	64,104	68	14
Antrim.....	4,420		

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
SHIAWASSEE COUNTY (Continued),			
Bennington.....	\$6,365	-----	-----
Burns.....	6,435	-----	-----
Caledonia.....	2,572	-----	-----
Corunna City.....	531	-----	-----
Fairfield.....	974	2	-----
Hazleton.....	1,368	-----	-----
Middlebury.....	2,710	48	-----
New Haven.....	1,765	-----	-----
Owosso.....	2,751	5	-----
Perry.....	6,580	-----	-----
Rush.....	723	4	-----
Sciota.....	2,048	1	-----
Shiawassee.....	9,731	-----	-----
Venice.....	4,651	-----	-----
Vernon.....	6,298	-----	-----
Woodhull.....	4,185	8	\$14
ST. CLAIR COUNTY	28,962	13	3,222
Berlin.....	3,340	-----	-----
Brockway.....	770	-----	-----
Burchville.....	391	-----	-----
Casco.....	985	-----	-----
China.....	1,252	-----	-----
Clay.....	3,330	-----	200
Clyde.....	2,430	-----	-----
Columbus.....	1,475	-----	-----
Cottrellville.....	2,155	-----	-----
East China.....	755	-----	-----
Emmet.....	155	-----	200
Fort Gratiot.....	1,730	-----	200
Grant.....	175	-----	-----
Greenwood.....	265	-----	-----
Ira.....	-----	-----	-----
Kenockee.....	95	-----	-----
Kimball.....	195	-----	-----
Lynn.....	80	-----	-----
Mussey.....	227	10	100
Port Huron.....	1,175	-----	1,200
Port Huron City—4th Ward.....	15	-----	500
Riley.....	2,105	-----	-----
St. Clair.....	3,770	3	-----
St. Clair City.....	425	-----	822
Wales.....	1,667	-----	-----
ST. JOSEPH COUNTY	72,055	114	2,304
Burr Oak.....	4,494	-----	-----
Colon.....	4,544	32	426
Constantine.....	7,340	6	-----
Fabius.....	5,580	25	60
Fawn River.....	2,260	-----	-----
Florence.....	6,325	-----	-----
Flowerfield.....	5,135	37	252
Leonidas.....	4,001	-----	18
Lockport.....	5,803	3	20
Mendon.....	4,297	11	268
Mottville.....	2,310	-----	-----
Nottawa.....	4,796	-----	35

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
ST. JOSEPH COUNTY (Continued).			
Park.....	\$3,940	-----	-----
Sherman.....	3,805	-----	\$1,155
Sturgis.....	2,775	-----	30
White Pigeon.....	4,650	-----	30
TUSCOLA COUNTY			
Akron.....	15,919	-----	8,442
Almer.....	731	-----	1,036
Arbela.....	732	-----	890
Columbia.....	1,666	-----	50
Dayton.....	392	-----	459
Denmark.....	110	-----	-----
Elkland.....	913	-----	1,093
Ellington.....	100	-----	888
Elmwood.....	557	-----	660
Fair Grove.....	190	-----	315
Fremont.....	817	-----	864
Geneva.....	446	-----	1,460
Gilford.....	360	-----	145
Indian Fields.....	103	-----	110
Juniata.....	526	-----	-----
Millington.....	4,419	-----	205
Novesta.....	250	-----	12
Tuscola.....	-----	-----	30
Vassar.....	2,333	-----	-----
Watertown.....	524	-----	-----
Wisner.....	75	-----	-----
	675	-----	225
VAN BUREN COUNTY			
Almenia.....	135,910	744	6,105
Antwerp.....	3,988	-----	-----
Arlington.....	9,670	25	1,200
Bangor.....	13,090	20	-----
Bloomington.....	8,400	-----	-----
Columbia.....	6,354	-----	-----
Decatur.....	5,939	62	15
Deerfield.....	4,277	10	280
Geneva.....	1,680	-----	300
Hamilton.....	850	2	125
Hartford.....	5,178	-----	-----
Keeler.....	14,297	-----	-----
Lawrence.....	9,415	32	-----
Paw Paw.....	13,615	-----	-----
Pine Grove.....	14,489	350	3,400
Porter.....	1,842	-----	-----
South Haven.....	7,630	18	215
Waverly.....	10,310	225	570
	4,886	-----	-----
WASHTENAW COUNTY			
Ann Arbor.....	209,650	28	11,579
Augusta.....	13,665	-----	1,695
Bridgewater.....	11,050	6	380
Dexter.....	9,545	-----	-----
Freedom.....	5,465	3	100
Lima.....	6,088	-----	150
Lodi.....	6,505	-----	90
Lyndon.....	12,220	-----	-----
	5,218	-----	34

COUNTIES, TOWNSHIPS, CITIES AND WARDS.	Value of Orchard Products.	Wine. (Gallons.)	Value of Pro- ducts of Mar- ket Gardens.
WASHTENAW COUNTY (Continued).			
Manchester	\$10,765	3	
Northfield	12,999		\$40
Pittsfield	17,595		150
Salem	15,330		249
Saline	12,330		200
Scio	6,352	5	
Sharon	5,651		10
Superior	12,445		200
Sylvan	6,997	11	20
Webster	11,540		
York	13,330		
Ypsilanti	13,420		1,255
Ypsilanti City	1,140		7,000
1st Ward	700		
3d Ward	140		
4th Ward	250		7,000
5th Ward	50		
WAYNE COUNTY	139,793	243	114,120
Brownstone	5,215		
Canton	12,905		420
Dearborn	6,585		
Detroit City	590	30	26,025
5th Ward			1,000
6th Ward	500	30	14,175
9th Ward	80		1,650
10th Ward	10		9,200
Ecorse	1,070		
Greenfield	4,765	5	13,188
Grosse Point	5,821	93	12,275
Hamtramck	1,282		25,204
Huron	3,945		12,950
Livonia	14,077	3	1,089
Monguagon	3,295	90	1,175
Nankin	12,991		12,400
Plymouth	33,755		185
Redford	9,787	22	2,164
Romulus	6,155		5
Springwells	2,245		7,030
Sumpter	4,065		
Taylor	1,775		
Van Buren	9,470		
WEXFORD COUNTY			4,105
Colfax			325
Hanover			580
Springville			660
Wexford			2,540
Reeder			120

ADDRESSES

AT

THE ADRIAN MEETING, JUNE, 1874.

OFFICERS OF THE ADRIAN HORTICULTURAL SOCIETY

FOR 1874:

PRESIDENT—J. W. HELME.

VICE PRESIDENT—PETER COLLAR.

SECRETARY—WOODLAND OWEN.

TREASURER—ARTIMUS SIGLER.

LIBRARIAN—HENRY E. OWEN.

EXECUTIVE COMMITTEE:

W. CLEMENT, J. HOAG, DR. V. A. BAKER, BENJ. STREET,
J. M. CAREY, G. W. MERRICK.

THE PEACHES OF THE MICHIGAN PEACH BELT.

AN ADDRESS DELIVERED BY HON. A. S. DYCKMAN, OF SOUTH HAVEN,
AT ADRIAN, JUNE 23, 1874.

GENTLEMEN :—When, about the end of the last half century, Eleazer Morton, George Parmelee, and Curtis Boughton, the pioneers of St. Joseph peach culture, set their respective orchards, an aggregate area of about 25 acres, people opened their eyes with amazement at this exhibition of lunacy, thinking the production of such large orchards would overstock the market. Now, with their estimated 594,467 peach trees in that region, in 1872, besides extensive orchard interests at South Haven, Saugatuck, Holland, Grand Haven, Spring Lake, and other points north along the shore, our Western Michigan fruit growers are relieved from the charge of lunacy, notwithstanding the reckless manner in which they are raising peach trees by the hundreds of thousands. But, to bring this subject to full comprehension, one should visit Chicago in the season of harvest, and see the wilderness of fruit, by every avenue of commerce, seeking destination in every corner of the great Northwest. People are in sober earnest; the fruit supply has become one of the great necessities of trade, and especially does the peach, with its delicious and health-giving qualities, find a welcome in every mart.

Although there are territorial limits, the area of successful peach culture is more than sufficient for continual supply and healthful competition. The Michigan peach belt alone is capable of supplying the whole Northwest in all its prospective growth. The extent to which the supply is sought in this direction will depend very much on the quality of our productions; therefore, to the attainment of the highest market qualities should our efforts primarily

NOTE.—The importance of the subject, and the historical, practical and useful nature of this paper, is a sufficient explanation of its introduction and publication in this volume. President Dyckman indicates and brings forward the four great peaches of the Michigan Peach Belt,—the Early and Late Crawford, the Barnard, and the Hill's Chili. Two of these, the Barnard and the Hill's Chili, appear to be of equal great value with the two Crawfords, but of provincial note and character. They seem to be identified with the growth of peach culture no where else as they are in the Michigan Peach Belt. Hence the importance of their identification and history, and the proper classification of their numerous synonyms.

But it is to the prominent points of pruning the peach tree and thinning the fruit that the attention of the peach grower will be directed. President Dyckman discards the "shortening-in system." This system was a favorite one with A. J. Downing, and was advocated by him in his most vigorous and eloquent manner. The "shortening-in system" has pro-

and mainly be directed. Then a judicious selection of varieties is of the highest importance. Among the new varieties, as Foster, Alexander, Richmond, the Rivers peaches, and others, we look for something worthy a place on our professional list. Especially are we interested in those ripening before the Early Crawford, a season wherein we have no tried sorts of first rate market qualities. We will give our impressions of the well known sorts, in their order of ripening.

Hale's Early is very hardy and productive, a good grower, and everything desirable in the tree. The fruit, when well grown, is of large size, beautiful appearance, acceptable quality, and but for its liability to rot would be quite satisfactory. It should be grown on ground having a free circulation of air.

Wheeler's Early is a good grower and hardy, except that it is quite as subject to curled leaf as any seedling. It is extremely liable to overbear; the fruit is medium size, of very bright appearance, fair quality, quite exempt from rot, and ships well.

Coolidge's Favorite is a good grower, hardy, and prolific. The fruit is medium size, of good quality, and beautiful appearance. The pit is liable to crack; too near the Early Crawford in ripening.

These three varieties have white flesh.

The Yellow Honest John is very vigorous, hardy, and productive. The fruit is of medium size, fair quality, and appearance, and ships well; the same season as Coolidge's Favorite.

The Mountain Rose is highly recommended by Mr. Thomas Archer, and other fruit-growers, at St. Joseph.

EARLY AND LATE CRAWFORDS.

The Crawford peaches are too well known to need any definite description. Their old popularity is fully sustained, they outsell all competitors in the market, and since at South Haven they passed through the unprecedented cold winter of 1872-3 with fruit buds intact, and the following summer bore a large crop of the finest fruit, their hardiness cannot be questioned. They are hardy in both tree and fruit, and quite exempt from leaf-curl. Add to this, excellent shipping qualities in the fruit, long period of ripening, and the tenacity with which the ripe fruit clings to the stem, and we have a rare combination of market qualities.

Commencing to ripen after a few of the first pickings of the Early Crawford, and continuing until after it, comes the Barnard. This excellent peach, to which we will have occasion to refer again, was received from western New York, by Mr. George Parmelee, of St. Joseph, now of Old Mission, on an order for

duced wonderful effects in the increase of the vigor, growth, longevity, and production of the peach tree. No doubt the pruning system of President Dyckman will be a subject of much criticism, and with his consent we introduce here what Mr. Downing had to say about

THE SHORTENING-IN SYSTEM.

Pruning.—It has always been the prevailing doctrine in this country that the peach requires no pruning. It has been allowed to grow, to bear heavy crops, and to die, pretty much in its own way. This is very well for a tree in its native climate, and in a wild state; but it must be remembered that the peach comes from a warmer country than ours, and that our peaches of the present day are artificial varieties. They owe their origin to artificial means, and require therefore a system of culture to correspond.

In short, we view this absence of all due care in the management of the peach tree, *after it comes into bearing*, as the principal original cause of its present short duration, and the disease which preys upon it in many of the older parts of the country. We therefore earnestly desire the attention of peach-growers to our brief hints upon a regular system of pruning

the Lemon Cling. This peach, which proved Freestone, became quite a favorite with Mr. Parmelee, and it was disseminated from his orchard, under the name of Lemon. It has since assumed the name of Barnard, on account of its supposed identity with Barnard's Yellow Rareripe. But if this last is identical with the Yellow Alberge, it is not the same, for it ripens later than the Yellow Alberge, and has reniform glands.

A peach has been brought to light at Paw Paw, in this State, called Snow's Orange, because found in the garden of Mr. Snow, of that place, that seems to be almost, if not quite, identical with Mr. Parmelee's Lemon.

Mr. John Smolk, Jr., who formerly owned the Snow place, says the pits out of which this, among other trees, grew, were from a very fine lot of peaches which he purchased at a fair in western New York. He planted the pits on Big Prairie Ronde, and transplanted the trees into his garden at Paw Paw.

Jaques' Rareripe and Old Mixon Freestone, have perhaps about equal claims to the next place in our succession of peaches. Both are hardy and productive, with fine market qualities in the fruit.

HILL'S CHILI.

This peach and its offspring, of which undoubtedly there are several, to all of which our society agrees to apply the above title, are known in this State by not less than nine different names, as follows: Hill's Chili, Stanley's Late, Cass, Leopard, Jenny Lind, Queen of Sheba, Seagrove, Smolk, Sugar, Climax.

The name Stanley's Late was given this peach by Eleazur Morton, of Benton Harbor, who procured the buds from the garden of Thomas W. Stanley, of Prairie Ronde, Kalamazoo county. Mr. Stanley settled here in about the year 1831, and from pits brought from his former home in Leroy, New York, it is said was grown the Stanley's Late.

In the same year (1831), John Hascall emigrated from the town of Leroy, Genesee county, New York, to Kalamazoo county, Mich., and settled on Genesee Prairie. He brought peach trees from General Cass's place, in Detroit, which, it is understood, the General had imported from France. One tree on Hascall's place proved to be particularly hardy, bearing fruit of unusual excellence. In view of its reputed origin, it was named the Cass peach.

The fact that Hascall and Stanley came from the same locality in New York, about the same time, and the known power of this peach to re-produce itself from the pit, would seem to indicate a common origin in New York. As further evidence, this same peach made its appearance in the orchard of Mr. Finch, near Mason, Ingham county. Mr. Finch was from Delaware

this valuable tree. Of course we speak now of common standard trees in the orchard or garden.

A peach tree, left to itself after being planted, usually comes into bearing the third or fourth year, and has a well-shaped rounded head, full of small bearing branches, and well garnished with leaves. It must be borne in mind that the fruit is only borne on the young shoots of the previous summer's growth. In a young tree these are properly distributed throughout. But in a couple of seasons, the tree being left to itself, the growth being mostly produced at the ends of the principal branches, the young shoots in the interior of the head of the tree die out. The consequence is, that in a short time the interior of the tree is filled with long lean branches, with only young shoots at their extremities. Any one can see that such a tree can be provided with but half the number of healthy, strong shoots for bearing, that one would have if filled throughout with vigorous young wood. The sap flows tardily through the long and rigid branches, and not half leaves enough are provided to secure the proper growth of the fruit. And, finally, all the fruit which the tree yields being allowed to remain at the ends of the branches, they often break under its weight.

Now, we propose to substitute for this what is generally known as the *shortening-in* sys-

county, New York. His son, William Finch, now of Naper Valley, California, introduced this peach at St. Joseph, under the name of Queen of Sheba. Mr. J. B. Southerland, of St. Joseph, propagated from this stock, under the title of Climax. Mr. Southerland says there were two original trees in Mr. Finch's orchard, in Ingham county. Mr. George Parmelee, who propagated from the Stanley's stock, called the peach Leopard, on account of its spotted appearance when ripe. Mr. T. W. Dunham, of Kalamazoo county, disseminated this peach at St. Joseph, where he set an extensive orchard, and gave it the name of Jenny Lind. In the neighborhood of Benton Harbor, it assumed the synonym Sugar. This delectable peach, in masquerade, found its way into the orchard of Mr. Seagrove, of Grand Haven, as the Smolk. It was welcomed into this more northern region and propagated by Mr. Husted, of the Grand River nurseries, under the name of Seagrove's Smolk. Whether these various stocks are derived from the original stock, through the process of budding, or reproduction from the pit, is not of great importance in our present investigation. That the tree and fruit are in all points identical is sufficient reason why they should bear a common name. We would suggest that the question of its origin in New York be referred to J. J. Thomas, our distinguished guest, for the settlement of this question might determine the name for general use. If it should appear the original stock was imported from France, it could, with great propriety, be called the Cass peach. If its origin was in New York, we could, perhaps, unite on a name having the claim of priority. Our committee on nomenclature have selected for this peach the name of Hill's Chili. Its extreme hardiness, early and constant bearing, and the excellent quality of its fruit, have won for Hill's Chili a general popularity in our State. It is quite liable to injury from over-bearing, if the fruit be not carefully thinned. No peach, later than Hill's Chili, can be recommended for general culture in the lake shore region. These two peaches, which we call Barnard and Hill's Chili, have thus stolen among us *incognito*, and without the prestige of a bright exterior, by intrinsic merit alone, risen in estimation until they are able to dispute the supremacy of the orchard with those old favorites the Early and Late Crawford. For their greater liability to fall, and lack of bright colors, we have compensation in their smaller pit, more uniform size, and extraordinary shipping qualities.

The above list of peaches gives a complete succession. Of these, the four

tem of pruning. We affirm, both from its constant success abroad, and from our own experience and observation in this country, that, putting its two diseases out of the question, the peach may be continued in full vigor and production, in any good soil, for from ten to thirty years.

Let us take a healthy tree in the orchard or garden, in its first blossoming year. It is usually about six to eight feet high, its well-shaped head branching out about three feet* from the ground. It has never yet been trimmed, except to regulate any deformity in its shape, and this is so much the better.

At the end of February, or as early in the spring as may be, we commence pruning. This consists only of *shortening-in*, i. e., cutting off *half the last year's growth* over the whole outside of the head of the tree, and also upon the inner branches. As the usual average growth is from one to two feet, we shall necessarily take off from six to twelve inches. It need not be done with precise measurement; indeed, the strongest shoots should be shortened back most, in order to bring up the others, and any long or projecting limbs that destroy the balance of the head should be cut back to a uniform length. This brings the tree into a well-rounded shape. By reducing the young wood one-half, we at the same moment reduce the coming crop one-half in number. The remaining half, receiving all the sustenance of

* We think *low* heads much preferable to high ones on many accounts. They shade the root, and are more within reach both for pruning and gathering.

first, Hale's Early, Wheeler's Early, Cooledge's Favorite, and Yellow Honest John, should be supplanted as soon as possible, with something better.

But trees, however excellent, cannot give satisfaction except under proper management. Our purpose is to glance at a few prominent points in this connection :

First—*Cultivation*.—We plow early in the season, with an ordinary two-horse plow, the usual depth, making the ridge in the center one way, and dead furrow the other. By reversing the process the following year the ground is kept level. The two furrows on either side nearest the trees, are made with a one-horse land-side plow, taking care not to disturb the roots near the tree. The after culture is continued with the harrow, and with the two-horse cultivator, until picking time, especially in time of drouth, when the cultivation should be constant. Then for the rest of the season, to enable the new wood to reach full maturity, the orchard is left without cultivation. The necessary amount of hand work, to hunt the borers effectually, and prepare the ground for the Ransom traps, necessitates good cultivation about the tree trunks.

Second—For the Ransom process of catching curculio, we refer to an article in the report of 1871. We catch also under the traps, many other injurious beetles, and noxious worms. We commence catching early in May, when the curculio first makes its appearance. We cannot recommend, as yet, the disuse of the "sheet and jarring" process, although we are not using it.

Third—In the early part of June we commence thinning the fruit, and drive the work to completion as rapidly as possible. A thorough thinning of the fruit cannot be too earnestly recommended as essential to the value of the fruit crop as well as to the health and longevity of the trees.

Fourth—Of not less importance is annual pruning. We discard entirely the "shortening-in" system, as generally understood, that is, the cutting back a portion of the last year's growth. The natural tendency of the tree to grow stocky is sufficient, with the annual thinning of the branches, to keep it in proper form. Nature knows better than we where and how to place the annual termination of limb, and so radical interference with her method as this "cutting back" can only be justified under exceptional circumstances, or where climatic influences require special treatment. We cut back only to keep the head of the tree in proportion, and within reaching distance with a seven-foot ladder. Any tendency to grow long, straggling branches, is overcome by thin-

the tree, are of double the size. The young shoots, which start out abundantly from every part of the tree, keep it well supplied with bearing wood for the next year, while the greater luxuriance and size of the foliage, as a necessary consequence, produces larger and higher flavored fruit.* Thus, while we have secured against the prevalent evil, an over-crop, we have also provided for the full nourishment of the present year's fruit, and induced a supply of fruit-bearing shoots throughout the tree for the next season.

This course of pruning is followed regularly, every year, for the whole life of the tree. It is done much more rapidly than one would suppose; the pruned wounds are too small to cause any gum to flow; and it is done at the close of winter, when labor is worth least to the cultivator.

The appearance of a tree pruned in this way, after many years of bearing, is a very striking contrast to that of the poor skeletons usually seen. It is, in fact, a fine object, with a thick, low, bushy head, filled with healthy young wood, and in the summer with an abundance of dark-green, healthy foliage and handsome fruit. Can any intelligent man

* It is well, in shortening back, to cut off the shoot close above a *wood-bud* rather than a blossom-bud. Few persons are aware how much the size and beauty of the fruit depend on the size and vigor of the leaves. We have seen two peach trees of the same age side by side, one unpruned, and the other regularly *shortened-in*, and both bearing about four bushels. That of the latter was, however, of double the size, and incomparably finer.

ning the branches to the point of keeping an open, well ventilated top. This method is far less expensive, for the tendency of "shortening-in," is to make the top more full and compact. Then, again, to have fair fruit, and prevent a mass of feeble growth to fill the top with dead wood the following season, brings the necessity of much summer pruning. As to the yellows, that great inscrutable dread of the peach-grower, we refer to the able report of our committee, with only this admonition, that with axe and spade and fire the most radical treatment brings the greater safety.

To have in this New West the peach in full luxuriance and perfection, as in its native Orient, with its most beautiful fruit, a health-giving delicacy, upon tables of rich and poor, should be warrant enough for the utmost diligence in its cultivation; for in the justice of God's government we cannot expect the continuance of a blessing we do not deserve and appreciate.

hesitate about adopting so simple a course of treatment to secure such valuable results? We recommend it with entire confidence to the practice of every man in the country that cultivates a peach tree. After he has seen and *tasted* its good effects, we do not fear his laying it aside.*—Pages 583-585, *Downing's Fruits and Fruit-Trees of America*.

*Our attention has been drawn to the following remarkable examples of the good effects of regular pruning, which we translate from the leading French journal of horticulture. We ask the attention of our readers to these cases, especially after perusing our remarks on the Yellows and its cause.

"M. Duvilliers laid before the Royal Society of Horticulture an account of some old peach trees that he had lately seen at the Chateau de Villiers, near Ferte-Aleps (Seine-et-Oise). These trees, eight in number, are growing upon a terrace wall, which they cover perfectly, and yield abundant crops. The gardener assured M. Duvilliers that they had been under his care during the thirty years that he had been at the chateau; that they were as large when he first saw them as at present, and that he supposed them to be at least *sixty years old*. We cannot doubt (says the editor) that it is to the annual pruning that these peach trees owe this long life; for the peach trees that are left to themselves in the latitude of Paris never live beyond twenty or thirty years. M. Duvilliers gave the accurate measurement of the trunks and branches of these trees, and stated, what it is more interesting to know, that although all their trunks are hollow, like those of old willows, yet their vigor and fertility are still quite unimpaired." (*Annales de la Société d'Horticulture*, tome xxx, p. 55.)

In volume 25, page 67, of the same journal, is an account of a remarkable peach tree in the demesne of M. Joubert, near Villeneuve le Roi (département de l'Yonne). It is trained against one of the wings of the mansion, covers a large space with its branches, and the circumference of its trunk, taken at some distance from the ground, is two feet and a half. It is known to be, actually, of more than 93 years' growth, and is believed to be more than 100 years old. It is still in perfect health and vigor. It is growing in strong soil, but it has been regularly subjected to a uniform and severe system of pruning, equivalent to our shortening-in mode. Where can any peach tree of half this age be found in the United States, naturally a much more favorable climate for it than that of France?

HORTICULTURE FOR THE PEOPLE.

ADDRESS BY J. J. THOMAS, OF UNION SPRINGS, N. Y., BEFORE THE
MICHIGAN STATE POMOLOGICAL SOCIETY,—THE ADRIAN MEETING.

INTRODUCTORY REMARKS.

In offering you a few remarks on this occasion, I propose to present some thoughts which have occurred to me, on the benefits to the whole people of this country, if all should give a share of their personal attention to the cultivation of gardens. I include garden culture in its widest sense: fruits, flowers, and ornamental trees,—everything that contributes to the comforts of intelligent country and town life, and tends to increase the attractions of home. The poet Cowper apostrophizes domestic happiness as the only bliss of paradise that has survived the fall; and although we do not and can not expect to make home enjoyments so perfect as to shut out entirely the afflictions of life, we may greatly mitigate these evils by securing to ourselves the comforts which a kind Providence has placed within our grasp, and by cultivating the kindlier instead of the hostile dispositions, in our intercourse with those around us. In devoting a half hour to this subject, among those who know much more than I on many points of practical horticulture, I am relieved by the reflection that the subject itself is so important as to sustain any amount of comment even from those who may fail to present it in any new aspect. Truth will bear many repetitions. It is like the light of the sun, which appears the same on each dawning morning, but its genial rays are ever welcome to all that possesses and enjoys life.

FRUITS AND FLOWERS FOR EVERY FAMILY.

The point which I wish especially to urge on this occasion, is that horticulture is adapted to every dweller in this broad country, who either owns or occupies a square rod of ground, and may add to the comforts of his family, and increase the attractions of his home, by the cultivation of fruits and flowers; and he who can devote a few acres may place upon his table, every day in the whole year, a supply of wholesome, delicious, and refreshing fruit.

THE CIRCLE OF FRUITS.

Does any one hesitate in receiving this assertion? Then let us examine the subject for a moment. We begin with strawberries. Our tables are already loaded with them, although the present season is later than usual. No more skill nor labor is required for every farmer and village resident to secure for himself a bountiful supply, than he devotes to his potatoes and cabbages—all

that is needed is to *know how*. The care and labor which the farmer gives to an acre of corn would place upon his table a full peck of delicious and blushing strawberries every day during all the strawberry season. Early cherries, such as the Early Purple Guigne and some other sorts, are already fully matured. The later will ripen long after we have ripe currants and the earlier raspberries. The earliest apples and pears are ready by the time of wheat harvest; apricots, where they succeed, are even with them; and after these the crowd begins to thicken with early plums, and with the rapid succession of apples, pears, peaches, blackberries, grapes,—all through autumn and into winter. Winter Nelis, Anjou, and Lawrence pears, keep up a bountiful supply into January, and Josephine de Malines is as melting and delicious in February, and later, as the best pears of autumn. (In my own case, so profusely have the trees borne, that I found a difficulty in getting rid of my midwinter supply, until the students of a large boarding school in the neighborhood kindly assisted, without charge.) Grapes may be made to contribute a daily supply throughout the autumn months, and with proper management, and with a well constructed fruit room, the longest keeping sorts may continue until spring. Winter apples will afford a supply until June.

KEEPING FRUIT.

After having selected the right sorts for a succession, planted them on suitable ground, given them proper attention by cultivation, and what is very important, planted enough to give a copious supply, there is still one other most essential requisite,—a good apartment to keep them in. Here is the point where so many fail. I will illustrate my meaning by a single case. A cultivator had a few Winter Nelis pear trees. He gathered the fruit at the usual time, in autumn, and placed them in his warm cellar. They soon ripened, and were all gone before the end of November. Another cultivator gathered his about the same time, and placed them in a cool out-house, facing the North. They remained unchanged till near the beginning of December, when he removed them to his fruit room. This was an apartment separated from the rest of his cellar by a solid brick wall, made dry by the bottom and sides being covered with a coating of water lime cement, and the windows so hung on adjusting hinges that the temperature could be regulated by the thermometer, to near the freezing point. These pears kept until midwinter.

FAMILY SUPPLY.

May we not hope that the day is not distant when, through the influence of horticultural and pomological societies, and a more general dissemination of books and periodicals on the subject, every man in the land may be furnished with the yearly circle of fruits, for a full supply for his family the year round. The extent of ground to be planted for this purpose may not be large. A piece three rods square, planted with the earlier and later strawberries, beginning with the Nicanor and Scarlets, and ending with the Jucunda and Kentucky, will give him five quarts daily for a full month. The same extent of ground will furnish him an equal supply of raspberries and blackberries, and currants, to follow the strawberries. A quarter of an acre of summer and autumn pears, and another quarter acre of winter pears, will be likely to give an abundant supply, provided care is taken to plant the right sorts. An acre of well managed apple orchard will afford (except in the poorest seasons) all the apples that a medium sized family can manage for a year, provided they are properly cared

for. A quarter-acre vineyard will give an annual half ton of grapes,—enough to afford a daily feast of six pounds on the table for the two autumn and three winter months. All these supplies will be obtained from less than two acres of well managed ground; and, if planted so as to be subjected to horse cultivation, the expense of keeping the whole in order will not be a twentieth part as much as the mere money value of the crops yielded, to say nothing of the comfort afforded to the family.

It is better, however, to have too much fruit than too little; for it is easy to dispose of the surplus by canning, or drying, or by selling, or by giving away. It is only the meager supply that has led many to adopt the opinion that fruit cannot be kept long, and that the yearly circle is an impossibility. Take for example the Anjou pear. Twenty years ago, when first introduced, it was regarded by every cultivator as only an autumn pear, ripening in October. The fact was, the specimens were so few that they were all eaten before they had an opportunity to show the world that they could endure till midwinter. It was when fine fruit was scarce that the famous rule for keeping fruit was promulgated, namely: place it in a cool cellar, lock the door and hide the key.

EARLY HISTORY.

It is not unreasonable to expect that before long the people at large will have provided themselves fully with these luxuries. Go back fifty years and see what progress has been made. Land-owners had generally planted a few fruit trees at that early period, for the appetite for fruit is scarcely less universal than the appetite for money; but orchards then would hardly satisfy adepts at fruit culture at the present day. Apples were commonly known as of two kinds, "natural fruit," and "grafted fruit." We had then two sorts of cherries, "sour cherries," and "English cherries," with sometimes a rare aristocratic mixture of "oxhearts" and "maydukes." There were also two sorts of plums,—the "blue plum," with its shades of variation, and green or yellow plums, which, however worthless, were known under the one comprehensive title of "green gages," or in some places the only distinction was between "wild plums" and "tame plums." Few had ever *heard* of nectarines and apricots; cultivated strawberries, in beds a yard or two square, were a great variety.

PROGRESS.

But a few enterprising and intelligent cultivators were striking out boldly from the great mass, and some fruits were becoming introduced a few years afterwards, that even now are classed with our best varieties. The Sweet Bough, the Early Harvest, the Fall Pippin, Esopus Spitzenburgh, and Swarr, among apples; and the Madeleine, Jargonelle, Virgalieu, Seckel, and Bartlett, among pears, were finding their way into the grounds of many. Since that day, hundreds of thousands of acres have been planted with the most delicious sorts which Europe and America can afford, and although millions of trees have been literally lost in experimenting for the best sorts, the progress in successful fruit culture made throughout the country has been of the most extraordinary character.

GREAT EXTENT OF NURSERIES.

With the increase of taste and intelligence, and the demand for trees to plant, nurseries have increased in a corresponding degree. I well remember, a little over thirty years ago, visiting a nursery at Rochester, New York, then

occupying six acres in all,—or rather it was expected to occupy six acres, when all planted. Two laborers were hired to do the digging and hoeing, and the two young and industrious proprietors did the pruning, budding, and grafting. I have since visited that nursery many times,—or rather, I have visited the nursery of the same proprietors, at the same spot,—for its boundaries have now extended beyond those of the six acres, and for many years it has occupied more than six hundred densely planted acres; and, according to my own estimate, it has sent out, to be planted in all parts of the Union, including California, into Europe and Asia, and even to far Australia, no less than twenty million orchard fruit trees. About 35 years ago, a New England nurseryman, as he informed me, had occupied one whole acre with nursery fruit trees; and he had the boldness and enterprise to add two acres more. His neighbors held up their hands in astonishment, exclaiming, “Where will you find market for all these trees?” He did, however, find a market for them, and some nurserymen besides have done the same, for in less than twenty years from this date, Ellwanger & Barry, of Rochester, had increased their nursery of six acres in 1839, to more than 400 acres in 1858, and other nurseries in the eastern, middle, and western States had become extended to hundreds of acres each.

There are now in the United States more than 10,000 acres actually under compact nursery growth, of which Rochester and Geneva occupy more than one-half, perhaps, more than two-thirds. Rochester has been long famed for its nurseries; Geneva has arisen within a few years, and has fully equaled, if not excelled it, and it is worth a long journey to any one interested in fruit culture to visit that beautiful place in the summer season, and witness the rich undulating surface of the country, with its thousands of acres of nursery trees, stretching in every direction; and, during the digging, packing, and shipping season, it is one wide scene of commotion, with its swarms of laborers, its lines of loaded wagons, and the long and ponderous trains starting out with their tens of thousands of trees for all parts of the Union.

NURSERIES STILL INSUFFICIENT.

Some one asks, “What becomes of all these trees? Will not the whole Union become flooded with them? Will not every city and country market become glutted with the fruit?” The number of trees, it is admitted, which are yearly set out amount to no less than fifteen, and perhaps twenty millions. Let us examine, for a moment, how far these would go in supplying the present population of the country (to say nothing of foreign shipments), with the yearly circle of fruits. We have about 40,000,000 of people,—one tree annually to two inhabitants. Would this be sufficient to keep up an annual supply and an annual succession? A single family of ten persons will want about 50 apple trees, 50 pear trees, and 50 to 100 various other trees, and many vines and bushes for small fruits. The present nurseries will supply five trees annually to these ten persons,—hardly enough to sustain all the orchards from their natural decay, even if none were lost by transplanting, by deficient culture, by the intense cold of our winters, and by various insects and diseases, not counting the large number required for the extensive market orchards which are annually set out. It may therefore be laid down, as a truth, that our present extensive area of nurseries are not sufficient to keep up the annual decay of moderate orchards for each family, to say nothing of the enormous demand which would be required for each land-owner to set out new and full plantations.

EXHIBITIONS OF FRUITS.

The facts which I have mentioned show the gratifying progress which fruit culture has made within the past thirty years. I could mention many isolated incidents as additional illustrations. In the year 1841 the first New York State Fair was held at Syracuse. We had few horticultural exhibitors in those days, except at the State fairs. At that fair premiums were offered for the best and most extensive collections. The man who took the first prize carried from the cars to the exhibition, in a willow basket, his entire collection. Those who attended the exhibition last autumn, at Boston, of the American Pomological Society, where two vast halls were crowded with specimens on their loaded tables, and where the collection from a western State (in which the first fruit tree was not planted sixteen years before), was so large that after filling a long series of tables seven barrels of specimens were excluded for want of room, will admit that we have made some progress.

And yet, with all this increase, good fruit sells at a higher average price in market now than it did when, thirty or forty years ago, there was not one-hundredth part as much raised as at the present time.

DIFFICULTIES TO CONQUER INSECTS.

We have, however, not conquered all the difficulties in the way. But we are constantly learning and improving. Our cold winters have enabled us to make greatly improved lists of hardy varieties, by thinning out for us the tender and unreliable sorts. We are still battling with insects, and gaining knowledge. Take the curculio for example, which, a dozen years ago, was regarded as our worst enemy. We need not fear it now, more than we fear the weeds which require the labor of the cultivator, notwithstanding its great increase. It has proved a formidable foe to smooth fruit, but we have met and conquered it. On the part of many cultivators the war proved long and doubtful. The expedients and stratagems were numerous, and were mostly failures. The insects were to be frightened away by the tinkling of bells shaken by the wind; or by offensive odors; or by belts around the trunks which they could not pass; or by pavements where the young brood could not effect a lodgment; or by covering the young fruit with lime wash; or by planting the trees over water; and they were to be entrapped and caught in bottles of sweetened water hung in the trees. But one by one these were found to prove failures. The fetid odors were much more offensive to the owners of the trees than to the insects. The belts around the trunks indeed prevented them from crawling up, but as they could easily fly when the weather was warm, the remedy proved as efficacious as the ancient attempt of the wise men of Gotham to hedge in the sparrows. The pavements prevented the escaping larva from entering the soil, but they cost more than the value of the crop, and could never be applied to orchards at large. Dr. Underhill planted a row of plum trees inclining over the water of an artificial canal, and thought he had accomplished the great object because he could not easily reach those parts of the tree that hung over the water, to examine whether the young fruit was punctured or not. But on climbing out on these branches, I found the crescent marks as abundant there as elsewhere; but still this method had some advantages, for the infected fruit dropped into the stream and was carried off. But the cost of cutting the canal, and the inconvenience of the position, rendered this remedy generally impracticable. The remedy of applying lime wash (so strongly recommended by Downing and other high

authorities), was very thoroughly tried by my next neighbor on four Nectarine trees. By means of an efficient syringe, he covered the whole of the trees, leaves, limbs, and fruit, with white-wash, and, at a distance, they appeared as if loaded with snow. After every rain, and after every heavy dew, he had to repeat the laborious process. But even this was insufficient; for as soon as the leaves, moved by the breeze, had rubbed off a small spot of the lime, the curculios, always on hand and ever vigilant, planted their ovipositors there and did their work. The consequence was, that of all the specimens of these four good sized trees, but six nectarines escaped; and, as I afterwards learned, were all on the tree under which a young and restless calf was kept tied, and served to frighten the bugs away by his constant motions.

The remedy which was first tried forty years ago by David Thomas, and proved successful then, is still found in some of its modifications the most reliable at the present day, namely, jarring down on sheets. Swine and poultry will answer where the insects are not abundant; and where they *are*, these animals prove a useful auxiliary. The jarring remedy has often failed because not properly applied. Instead of inserting an iron plug into the tree to receive the sharp blow of a hammer or ax, which is sure to bring down every curculio; a soft padded mallet has been employed, which gives an inefficient blow and only a part fall. The remedy also fails frequently because not faithfully and unremittingly applied. In a plum orchard on my own grounds, containing about seventy trees, I found that one hour or less, every morning, was sufficient for a common hired man to do the work; carrying two stiffened sheets (like large kites) in one hand, and the heavy hammer in the other, and with his thumb and forefinger he killed them rapidly. The least number of insects destroyed in any one year was 400, the greatest, 5,000. Where not a peck of good fruit was borne previously in the whole orchard, the trees, as soon as this process was employed, were loaded the first year with enormous crops, of beautiful blushing or golden and delicious plums. But there was one trouble I did not count upon; the trees became stunted and exhausted by this successive overbearing, and two years ago the severe winter injured many and killed a portion,—from the effects of which the rest are now recovering. It is well enough to destroy all the curculios, for we cannot trust them to thin the crop properly; but as with all other fruits, the crop should be thinned by hand when small, to prevent the exhaustion of overbearing, and to give finer and better grown specimens. The expense of protecting the trees from those insects in the manner I have described, has been about six cents per tree, in each year; but there are modifications or contrivances for the jarring process, better adapted to large orchards, that cost much less in using.

Time will not allow me to dwell longer on insects,—I must proceed to other suggestions.

PLANTING BETTER THAN BUILDING.

I feel desirous on this occasion to urge the truth that an intelligent attention to horticulture will enable any man who owns a square rod of land to provide more of domestic comfort, and to gather round his home more of real, substantial attraction, than by an equal amount of labor and expenditure in any other way. I have seen men build for themselves dwellings costing from five to ten thousand dollars or more, who seemed wholly unaware of the almost infinite amount of attraction which might be added by ornamental planting, and by the cultivation of the yearly circle of fruits. A neighbor built a handsome brick mansion which would now cost fifteen thousand dollars. He then

went to a neighboring nursery, and by a great stretch of liberality, as he thought, expended in ornamental trees and shrubs the huge sum of five dollars currency. He had been taught or had taught himself to believe that it was a waste of funds to buy trees that were merely "good to look at," although he had put several thousand dollars in piles of brick and stucco for no other purpose whatever than show. A twentieth part of the amount thus needlessly expended would have given him a valuable fruit garden, and have invested his dwelling with a paradise of rich foliage, and with the bloom and perfume of flowers. The truth was, he had never read a horticultural book or journal, nor cultivated the dormant taste, often smothered down and undeveloped, which naturally exists in the bosom of nearly every human being. I say *nearly* every one, for there seem to be a few in whom, from some deficient phrenological development, or from some other cause, a refined taste for these beauties of nature seems to be totally extinct, and such should claim our sympathy for this natural deprivation. I have had occasion to contrast this bleak and stately mansion with some neat and small dwellings, erected at a tenth the expense, surrounded with all the attractions of masses of soft green foliage and clustering flowers.

Lord Bacon never said a truer thing than when he asserted that nations, in their onward progress in civilization, began with erecting stately edifices, and ended with highly cultivated gardens. Some twenty years ago I made a tour through some of the western States, and drove through towns and cities and their suburbs, to see the well kept and finished gardens and grounds. But I was disappointed. The gorgeous palaces were not wanting, but the surroundings were bare or unpolished. But these things are of the past,—a brighter era of refined horticulture has dawned. Civilization, according to Lord Bacon's criterion, is advancing; and the substantial charms and refining influences of the garden, are becoming widely and rapidly diffused.

EVERY MAN CAN PLANT.

Every man in this country has these delights and advantages within his reach. N. P. Willis very justly observed that "Nature lets the tree grow and the flower expand for man, without reference to his account at the bank." Every man, in health, in this country, can have land enough and means enough to exercise his skill in cultivation. We too often fall into the error of thinking that one must be positively wealthy in order to enjoy a well planted and a well kept home. Every person may have a comfortable competence as he advances in years. Suppose that a young man at twenty-one begins merely as a day laborer. If he can lay up only a hundred dollars yearly, and add interest to interest at 7 per cent, he will, in 40 years, or at the age of 61, have accumulated no less than \$20,000. Many, however, will easily lay aside \$200 a year, in which case they would have, at 61 years, \$40,000. There are some leaks which a prudent man will stop, and thus add to the accumulations. Suppose, for example, he is willing to forego the use of tobacco, which may happen to cost him but \$20 yearly,—this saving alone will amount to \$4,000 in his life time of 40 years. These facts show that every industrious person may at least secure for himself a pleasant and comfortable home. If a mechanic, he can purchase a small lot of land; if a farmer, a few acres will suffice to gather around his home all that may be desired of fine fruit and blooming ornamentals.

THE WORKS OF CREATION.

Each country resident, and indeed town inhabitant, if he only has a few square rods to cultivate, may have an inexhaustible fund for enjoyment. I once counted in the contracted enclosure of a friend who lived in the thick portion of New York city, no less than forty species of ornamental plants, besides his currants, raspberries, and grapes; and in a still more contracted space in Chestnut street, Philadelphia, the residence of the late Dr. Brinckle, was collected that remarkable museum of growing fruits of new varieties, which he originated there, and which have rendered his name so well known throughout the Union. But the country resident has greater opportunities and a much wider field for observation, and can witness all that is beautiful, and may enjoy the grandeur and glory which the works of Creation open before him. It is too common for men to devote their whole time and all their thoughts to the accumulation of money. It is a great and common error to suppose that happiness is earned and intelligence advanced by a perpetual struggle for wealth. In this eagerness and error, men confine themselves to the office and counting-room, every hour of the day, week after week, year after year, and occupy their thoughts in the hours of the night, with constant efforts for gain, and shut out from their vision the sweet sunshine of heaven, and the beauty and glory of the world around them. The microscopic charms everywhere beneath their feet, and the telescopic wonders of the orbs above, are alike unseen and unheeded. The grandeur of wealth is nothing compared with the empire of beauty and glory which is given on every side, to the attentive observer; the fascination of money-making is low and groveling before the myriads of created forms which are constantly revealed to the vision. It is not necessary that the observer should be a man of entire leisure, to enjoy these scenes; an hour can be taken, morning or evening, or at midday, for the trees of his own planting, and for the flowers which are blooming under the touch of his hand. To all these, the revelations of science give a tenfold charm. The opening buds of spring are seen to develop a thousand microscopic wonders; he sees in every starting shoot a structure more surprising than the greatest work of architecture; he discovers millions of minute cells in every leaf that expands to the summer sun; he sees in every tree a perfect system of circulation and supply, complex by myriads of parts, but complete in order, by which its structure is ceaselessly built up, through the intervention of cells and vessels, too minute for the unaided eye, but under the optician's glass more perfect than the finest part of a watch, and more finished than the finest work of the engraver,—a single full grown apple tree containing within its branches more than a hundred millions of minute vessels, and having in its three hundred thousand leaves more than a thousand million breathing pores of exquisite form; delicious fruits forming on every spray, which, as they expand and ripen, become touched by the soft and unseen pencil of nature with tints of gold, or shadings of crimson; all a perpetual scene of wonder and change, without cessation by day and by night. And who that has witnessed this ceaseless rotation of life would give them all up for the sake of pouring over columns of figures and musty packages of bonds and contracts pent up within brick walls!

THE PLEASURES OF HORTICULTURE.

There is everything to invite the cultivation of the soil. The cheap comforts and luxuries which it furnishes in the yearly circle of fruits,—the increase

which it gives to the attractions of home,—the delight in the labors of propagation, planting, pruning, and culture,—the pleasure in watching the swelling buds of spring, the bursting and opening of blossoms, the growth and development of fruit, the grandeur of nature's foliage and bloom,—all these can never be secured by him who neglects the scientific and practical lessons which this art confers on its votaries. I do not say that the culture of the garden can fill the complete measure of all that we need of the present life, nor supply what the Christian religion only can give, but it can add to and increase them. Christianity itself is like the great and glorious edifice, perfect in form and symmetry; horticulture can entwine its spotless columns with wreaths of beauty, and thus become a valuable aid and auxiliary to the greatest of all benefactions to the human race.

CONCLUSION—MICHIGAN'S ADVANTAGES.

In concluding these remarks, I desire to congratulate the Michigan Pomological Society on the wide opportunity which lies before it, in possessing one of the finest horticultural fields of the whole Union, and in the gratifying progress it has already made. The Agricultural College of the State has long stood in the front rank of the most efficient institutions of the kind in the world, and the labors of its able professors have been attended with eminent success; and with both these institutions, and similar ones, conducted as they are with life and energy, I enjoy the confident hope of seeing the State eminently prosperous in all the arts pertaining to the culture of the soil. And if I should presume to make any suggestions for your future guidance, I would especially name the patriotic labor of a wide diffusion of horticultural taste among the people; the encouragement of the most perfect systems of cultivation, and the selection of the best things which modern pomology and horticulture have given. For home and family use, we want nothing of an inferior character; and for profit in market, the finest fruit, raised with the best skill, selected and thinned out to leave only the best specimens, and put up and packed in the neatest and most perfect manner, will command high prices and ready sales, when car loads of ordinary fruit can find no purchasers. Plant abundantly of long keepers,—plant sparingly of perishable sorts,—place before your people the best and latest intelligence on the subject,—encourage them in a thorough practical test of every question connected with it,—and I have no doubt that Michigan will stand among the foremost in what Lord Bacon regarded as the great and crowning art of civilization.

INSECTS INJURIOUS TO HOUSE PLANTS AND SHRUBBERY.

BY PROF. A. J. COOK, OF THE AGRICULTURAL COLLEGE, LANSING.

No person, who has been a regular attendant of the interesting meetings of this Society, no matter how enamored he may be of the term "Pomology," can for a moment deny the truth, that *that term* is all *too* narrow to rightly designate the scope of this Association. With what unfailling delight, and profit, too, have we witnessed, at each of our meetings, the admirable display of those richest, choicest gems of nature, the priceless gifts of Flora. Proud as we must ever be of Pomona's contribution, which, in our own Michigan, are truly peerless; still, all must grant that the crowning beauty of these exhibitions are direct from Flora's treasure-house. Even in these mid-summer gatherings, when all nature is rife with the matchless beauty of leaf and flower, what genial cheer is dispensed by the hanging basket with its dainty alyssum; the twining ivy *ever so* welcome; the variegated colias, whose rich coloration ever vies with surrounding bloom; the calla, so suggestive in its union of healthfulness and chastity; the modest fuchsia, and the not less beautiful geranium, not to mention the wonderful bouquet combinations, which glory in the very taste that they themselves have helped to develop!

I believe every member of this Society has felt to thank the flower-loving citizens of Kalamazoo and Adrian, as also our good friends, Messrs. Suttle and Ohlson, who have added so largely to our pleasure by their floral gifts.

Now, if it is true that brief gatherings owe *so much* to the beauty of these floral offerings, what shall we say of the thousand homes, whose genial atmosphere, and delightful cheerfulness, which are constantly weaving themselves into character, draw so largely from that wealth of floral beauty, ever heightened by the tasty intermingling of richest foliage, so generally seen in our Michigan parlors and flower-gardens. Who can estimate the good that society is constantly reaping, from the taste and labor, which is being bestowed everywhere about us, in the adorning of homes. Make all our homes a center of intelligence, as exemplified in their books, magazines, and papers, and also the seat of æsthetic culture, attested by the beautiful lawns, well-kept flower-gardens, graceful hedges, and neatly arranged shrubs,—nor would we omit window or parlor gardening, and evergreens,—and, I ween that the sad old song, that the children love not the home, but seek for pleasure in dangerous haunts outside, will scarce be heard. And that other complaint, that the sons will

not remain on farm and garden, will cease to trouble those old veterans in agriculture, who have learned to love well the fields, the meadows, and the farm, even though destitute of those æsthetic elements, whose only usefulness is in the pleasure they afford, and the subtle, though powerful influence which they wield.

Then, as individuals, and as a society, we should do all in our power to foster this work of home adornment, not deeming, forsooth, that a broad and beautiful lawn about the home is waste acreage, or that money expended for shrubs, and beautiful annuals, or labor devoted to their care and cultivation, or that effort to make the very in-doors smile perpetually, as with the breath of spring,—think not that all of this is as bread cast hopelessly on the waters, for indeed it brings the richest return, immediately, after many days, yes, and forever. As Beecher has most truly remarked, “The home adornment is a true index to the refinement of the home’s inmates.” Was it he that said, the Devil should not monopolize all the beautiful music? No more should the professions monopolize all the beautiful homes. Divorce taste and beauty, and intelligence, which is their fair companion, from any of our homes, and we need not wonder that our youth seeks other fields for life’s labor. Make these the invariable concomitants of our former homes, and they will hold out their own inducement for the retention of the wisest and noblest youths of our land.

That I may add my meed in this good work, I propose at this time to discuss those invidious insect foes which attack our flowers and shrubbery, whether in the garden or conservatory, the latter to include *all* our house-plants.

I am sure that in thus doing I shall confer a benefit on very many. For who of us has not felt vexed at witnessing our choicest roses, pelargoniums, and geraniums pine away, because of the myriad plant lice? who has not experienced sore disappointment at the coming of the fatal bark or scale lice, and the going out of the vital spark, in their graceful ivies, fuchsias, and stately oleanders, because of these ruthless enemies? Who has not felt sad and disheartened, as they have noted the withering attacks of the *repulsive* slugs, causing the foliage of their favorite roses to turn gray and sear, replacing rarest beauty with deformity and death? The so-called “mealy bug,” how often have they brought to naught the most beautiful of our fuchsias and other hard-wood plants. But this destruction of beauty and vexation of spirit would be much harder to bear, and *very much more* discouraging, except that we have cheap, practical and very effective remedies for all of these ills, which I propose to describe so fully, as also the method of application, that none of you need longer suffer.

THE PLANT LICE.—*Aphides*, or *Green and Black Flies*. *Sub-order Hemiptera. Family Aphidæ*. Perhaps no noxious insects are more destructive than the Aphis, for very few plants, either in our green-houses, windows, or along our borders and pleasure grounds, but have to contribute to the support of some species of plant lice. Not only do the tender geraniums, heliotropes, and pelargoniums fall a prey to their succubatorial habits, but also our more hardy shrubs, as the willow, cherry, and rose, are all powerless to resist their attacks.

A very curious fact as to the reproduction of the insects of this whole family makes their astonishing fecundity and alarming destructiveness the more easily understood. I allude to their increasing by parthenogenesis. In the autumn

brood of those subject to the out-door rigors of our climate, males and true females are produced. These pair and deposit eggs, from which are hatched, in the spring, only females. These do not produce true eggs, but there bud out from their pseudovaries germs, which develop into aphides, just like the parent. Thus, with no males all the long summer through, these agamic females keep on reproducing their kind, for several broods, until the blasts of autumn bring with the last brood of the season true males. Hence the increase of these little creatures is so near infinity itself as to be almost incredible. Reaumur proved that in five generations one aphid may be the progenitor of about six billion descendants. And when I say that in a common season there are twenty generations, you will no longer doubt that this remarkable fecundity surpasses that of any other insect, or indeed that of any other known animal. Nor will you longer wonder that your roses and geraniums so rapidly wither away when attacked by these prolific creatures.

It is probable that nature has endued the aphid with such surpassing fecundity in view of the fact of its many and rapacious enemies. Small birds, such as the warblers, pewees, sparrows, and fly-catchers, devour hosts of them. The larvæ of some of the lace-wing, lady-bird beetle, and the ferocious larvæ of the syphus flies, take them by myriads; hence it is that a safeguard is needed against their entire extermination. And what better could be provided than their indefinite fecundity? When we consider, then, that in green-houses, and on house plants these insects are exempt from their many foes, and more, that the continuous warmth makes the production of males forever unnecessary,—at least Kyber, by keeping a colony in a heated room, witnessed agamic reproduction for four years without exception,—we easily understand their alarming destructiveness.

The true female aphid is always apterous or wingless. The males always possess wings, while the ovoviviparous agamic females may have wings, though usually, she too is apterous.

The most common color of those aphides which prey upon house plants is green, though black aphides are by no means uncommon, and quite as destructive. These lice are known by green-house men as the green and black flies.

The aphides are small insects frequently not more than an eighth of an inch in length, with flask-shaped bodies, long, tapering antennæ, a strong beak, and frequently possess honey tubes extending from the posterior part of the abdomen, from which exudes a sweet secretion. Those plant lice which do not possess the tubes, frequently secrete a similar fluid from the ground surface of the body.

Many of you have noticed with what assiduity the ants wait upon the aphides, and have doubtless wondered at such warm demonstrations of attachment; for true it is, that hardly a plant is attacked with aphides without also harboring a full colony of busy ants. These ants are there for the purpose of sipping up the sweets which ooze from the nectaries of the plant lice. No wonder then that the ants will forsake even their own young, in order to protect the plant lice when danger threatens, for the aphides are both meat and drink to them, and the same reason that insures to the short-horns the fostering care of the breeder, secures to the plant lice the best attentions from the dependent ants.

The method by which these liliputian destroyers impoverish the plants which they assail, is by sucking out the juices which form the very life blood of the plant. And when we consider that these sappers are frequently numbered by the thousands,—aye millions,—we no longer wonder that even these tiniest of creatures so soon sap the vitality of our vegetable treasures.

These aphides, from their numbers and the wide field of their attacks, are often beyond the possibility of destruction. Besides, they are frequently so small, and so identical in coloration with the foliage preyed upon, that only the closest scrutiny can detect them, while others prey upon the roots, and are quite beyond our reach.

Remedies.—The sovereign remedy of this aphid evil, is fumigation with tobacco smoke. This, though a never failing exterminator of the lice, is sometimes too severe even, for the plants, especially the more tender varieties. The orchids, some of the ferns, and even pelargoniums, when in blossom, will only bear a very mild application of smoke without serious injury. Even pot roses will suffer from any but a very slight fumigation. The flowers of the beautiful *spirea japonica*, from bud to fullest bloom, are likewise apt to be spoiled by fumigation. So, we see, that caution is requisite, even in fumigating.

Green-houses are most easily fumigated. We have only to close the house, place a few coals in a shallow dish, place on tobacco stems, etc., and then cover with damp moss so as to prevent blazing. The more dense the smoke the better, as quick work does not so dry off the atmosphere as to cause injury. Drops of water should not stand on affected plants, as they seem to offer protection to the insects.

This remedy, often too ready at hand, may be used with parlor plants. An easy way to apply it is to take a flour sack, cut out the bottom, and tie a string about the top. Place a single coal, say in a small sauce dish, sprinkle this with the coarse tobacco, so covering with damp moss that it will be sure not to blaze. Place the plant closely along side, and cover all with the sack.

Having known my wife to ruin several choice plants by this means, I am led to urge great care. Be sure that the heat is not too great. Also gauge the smoke according to the hardness of the plant.

An india-rubber ball fastened by a tube and cork to a clay tobacco pipe furnishes a neater method. We have only to fill and light the pipes, adjust the cork, place the stem under the edge of the sack, and then to work our ball. We may thus fumigate with all ease.

Out-door plants, such as asters, roses, dahlias, and verbenas, all suffer ever and anon by the ravages of this pest. In such cases, as also with pot-plants, sprinkling with tobacco water is effective, and this kills the eggs as well as the lice. And even sprinkling very often with clear water is not without good, and this is even better if a garden syringe is used in the application. *Chrysanthemums* and roses in pots may also be treated in this same manner.

Sprinkling with tobacco water is also good, in case of fruit trees, for many, especially the cherry, are very liable to attack.

Drenching with soap suds, or a solution of whale oil soap, is also good.

BARK, OR SCALE-LICE.—*Sub-order Hemiptira, Family Coccidæ.*—Nearly as common as the aphides, quite as destructive, and more difficult to dispose of, are the scale-lice and mealy bugs. These belong to the family *Coccidæ*,—the same that contains the cochineal and lac insects, as also the common apple tree bark louse. Few plants are exempt from the white and brown scales. Even the English ivy, oleander, and other shrubs, are frequently destroyed by them; and woe to the fuchsia that becomes the seat of a colony of mealy bugs.

Both males and females of the scale insects are active for a few days after hatching, both fasten to the tree by their beaks, become covered by a waxy scale, which is the product of a secretion from the general surface of the body. The female never leaves the scale, while the male, as an imago, is possessed of

wings. In many species no males are known, and it is supposed that their re-production is also agamic, thus their powers of propagation are excessive, hence they are very injurious to the interests of the abori-culturists, for when they once gain possession of a plant or tree, death is almost inevitable.

These scale insects seem to retrograde in development, for as larva they are at first active, but soon become immovable, and seem little more than an inert scale. Under the scale the many eggs are deposited, though some of these scale-lice are ovoviviparous.

The mealy-bug, *Coccus adonidum*, rejoices in heat, and in green-houses does not simply exist on plants, but gets into every possible crevice. So that its riddance is next to impossible if it gets once thoroughly established.

Remedies.—The best method to manage the mealy-bug is preventive. Don't let it get a foot-hold. When once thoroughly established in a green-house, extermination, if not hopeless, involves extreme labor. In case of a few plants in the conservatory, or our window plants becoming affected, removal by hand is surest and best. This washing process is also very beneficial in cleaning the plants. No doubt many of you have noticed new vigor in your plants, consequent upon washing with tepid water.

When a house becomes thoroughly stocked with mealy-bugs, a general cleansing is all imperative. Washing every plant after the growth of the season,—September or October,—and all the wood-work of the conservatory, and repainting, is the only sensible plan. That able writer for the *Garden and Gardeners' Chronicle*, Mr. Baines, states in the former journal for February 14, that he once spent six weeks with two men in cleansing five of his houses, all badly affected, and reports that it was the best spent labor ever employed. What gives emphasis to this recommend is the fact that the mealy-bug, unlike the aphides, red spiders or thrips, if once extirpated, are forever banished from the conservatory, unless reintroduced by the acquisition of infected plants. Thorough work, combined with closest scrutiny, are all important in dealing with this pest.

The white or oleander scale, *Aspidiotus nerii*, Bouche, as also the more common, yet more easily destroyed brown scale *Aspidiotus proteus*, are also best destroyed with sponge and brush, if we have to deal with but few plants. These insects too, like the mealy-bugs, if once wholly banished, may with caution be easily kept at bay, as they can only spread by the plants coming in actual contact.

For extensive destruction in conservatories there are several patented articles from England, which come with high recommendation. The Abyssinian mixture and Fowler's Insecticide, four or five ounces to a gallon of water, also Gishurst's Compound eight ounces to the gallon, are said to be excellent. This latter is reported sure death to aphides, thrips, and meal-bug. Not only do writers in English magazines, but our very skillful gardener at the Agricultural College, Mr. Cassidy, speaks in high terms of these various compounds. There is no doubt that these substances in skillful hands are most admirable, not only as aids in destroying the noxious coccids, but other insects as well. Yet I hesitate to recommend their use, as also that of kerosene mixed with soap suds, and ammonia, for if the mixtures to be applied are not tempered to suit the hardness of the plants, they will not only prove fatal to the insect, but to the plant as well. And in case of some of the more tender plants, as the orchids, the plants are destroyed quite as readily as the scales. In treating tender plants, like camellias and ferns, if the experiment is to be tried, it should be after the season's growth, when the plants are ready to rest.

If any of us should think to try any of the above mixtures, we should proceed with the greatest caution, experimenting on each variety of plants on a small scale at first, that we may rightly gauge the mixture to the endurance of the various plants.

THRIPS.—*Thrips adonidum*—(Sub-order Hemiptera—Family Thripidae): The thrips would be classed among the worst insects of the conservatory in the old country. They are also very troublesome, in the older parts of our own country,—around Detroit, here at Adrian, and in our southern counties they are likewise a serious pest. These lice-like insects may be known by their possessing long narrow fringed wings. They differ in color, the larvæ and pupæ being yellowish white, while the imago is black, with dirty white wings. They are especially destructive to azaleas, vines, ferns, dahlias, phloxes, and verbenas.

These insects are destroyed by the same means that prove effectual in killing the aphides and red-spiders. What we have already said as to fumigation, and the use of tobacco water, in destroying the plant lice, will also apply in the destruction of the thrips.

ROSE SLUG.—*Selandria rosae* Harr—(Family Tenthredinidae—Sub-order Hymenoptera).—I presume that there are but very few of my hearers but have an acquaintance with these terrible destroyers of our most admired shrub. These insects are to be doubly dreaded, for though they fail to ruin, they so disfigure our rose bushes, that they become anything but a joy forever.

Early in June, the little, back, four-winged fly may be seen around the rose bushes, and on darksome days, may be easily captured.

These selandria belong to that curious family of Hymenopterous insects called saw-flies, so named from the fact that they possess a most wonderful saw-like instrument, by means of which they form grooves in leaves or twigs, in which they deposit their eggs.

The rose saw-fly deposits her eggs on the under side of the leaves. These hatch into light greenish larva, yellowish beneath. The larva of the saw-flies possess from eighteen to twenty-two legs, the rose-slugs having twenty-two.

When full grown, these larva are worm form, and about three-fourths of an inch in length. They eat the parenchyma of the leaves, leaving them sear and withered upon the bush. Having attained their full growth about the middle of July, they descend from the plant, go into the ground, where they form a cocoon, in which they pupate. The larva of saw-flies are usually slimy, hence the name slugs. The larva of the rose saw-fly is not slimy. The insects of this genus, and family too, are frequently two-brooded, as with the pear tree selandria, described in the report of 1872; but the rose slug, with us at least in Lansing, seems single brooded. So they remain in the ground as pupæ during the greater part of the year,—from August to May or June.

Remedies.—Whale oil soap, in solution, is a safe and sure remedy for the evils of the rose slug, but from its disagreeable odor, it is not pleasant to have about. A very weak solution of carbolic acid is also a sure preventive, and is more pleasant to use than the soap solution. White hellebore, either in powder or solution, is death to the destructive currant slugs, and would doubtless be effectual in destroying the rose-slug.

The rose-chaffer, described in the report of 1872, is, in the beetle state, very destructive to the foliage of the rose bushes, as well as to the grape vines. As stated then, hand-picking is a sure remedy against the destruction of these beetles; as then stated, I have little doubt but sprinkling with Paris green would also destroy the beetles.

WHITE ANTS.—*Termes flavipes*, Koller. (Family *Termitidæ*—Sub-order *neuroptera*).—Early this season I received some insects looking much like Albino ants from the enterprising proprietor of the Valley City Greenhouses of Grand Rapids, Mr. John Suttle, with the information that they burrowed in the shelves of his greenhouses, in which burrows the breeding was done; but not satisfied with riddling the shelves, they come up from beneath into the flower-pots and destroyed the plants, thus becoming a serious pest. Mr. Suttle further states that he has applied carbolic acid soap to the shelves, which was an immediate, though not a permanent remedy, and is desirous to receive information as to name, history, habits, and remedies.

These insects are the *Termes flavipes*, Koller, and the only representative our country affords of those most interesting and wonderful insects, commonly known as White Ants. This term, though, is a misnomer, for true ants belong to the same sub-order as our bees and wasps,—the *Hymenoptera*,—which comprises the highest insects; while the insects in question belong, with the dragon-flies and all other lace wings, to the lowest sub-order,—*Neuroptera*. Yet these so-called ants not only resemble our true ants in outward appearance, but in their nature and habits as well; thus forming one of those links in the animal kingdom which seem to unite widely separated groups. Like the true ants, these white ants burrow in the ground, and have in their colonies not only the winged male and female, whose only work, like the drones and queen of the hive, is to increase and perpetuate their kind; but also wingless forms, some small, with large round heads and small jaws, called workers, which perform all the labor of the colony, and others larger, with immense heads and jaws, whose only business is to defend the colony. The female after mating loses her wings, and becomes so distended with eggs as to be many thousand times larger than in the days of her virginity. I have one from Africa in my possession whose prodigious abdomen is as large as a man's thumb, while the rest of the body is but a mere speck at the end. Of course, in this condition, she is most helpless, being fed, cared for, and even her eggs carried from her by the ever active workers; though when I state the fact that she lays daily 80,000 eggs, no one will complain of this seeming lack of energy.

The *Termes flavipes* is found all through our country, under old boards and rails, into which they burrow, and beneath which in the earth will be found their extensive tunnels. They sometimes bore through the walls of houses into book-cases, and sometimes they even tunnel the books in a most exasperating manner. Some of the public archives in Springfield, Illinois, were thus injured to an alarming extent a few years since. I once saw, while at Cambridge, Massachusetts, a whole row of books which had been thus perforated, affording an opportunity to easily wire them together. Humboldt, in speaking of the white ants of Central and South America, omit in discussing their ravages, says it is rare to find books reaching back more than fifty or sixty years.

In South Africa the white ants rear mortar huts ten or twelve feet high, and sufficiently strong to bear a bull. If these are broken down, the soldiers will fight with a ferocity which is a terror even to man himself, for woe to the bare-footed negroes on whose flesh their formidable jaws close, as they know no let up till torn in pieces. In India and Africa their destructiveness is unparalleled, for not only clothing, books, and furniture, but even the dwellings themselves are totally destroyed by these voracious Termites. In their attacks upon books and furniture they enter from beneath and eat all but a thin shell, leaving no outward sign of their dastardly work, so the owner knows nothing of the mischief wrought till his possessions crumble beneath his touch.

The unwelcome discovery of Mr. Suttle, in regard to the *Termes flavipes*, is no new role, for though I can find no previous mention of such attacks in this country, and Professor Beal tells me that in none of his works on greenhouse enemies is the white ant noticed, yet I find that Koller describes just such attacks in the greenhouses of Schonbrunn, Germany, of this same insect introduced from the United States.

Mr. Suttle wishes advice as to a cure. It seems carbolic acid soap, or cresylic soap is effectual if frequently applied. Kerosene oil, solutions of camphor, and turpentine would be more penetrating if placed on the shelves, and would doubtless dispatch the enemy; and, I think, with sufficient care would be harmless to the plants. I have killed our common ants, when troublesome around my bee-hives, with Paris Green mixed with syrup. I do not know whether or no the white ants could be induced to try such a diet. By placing some under the pots it would be easy to determine.

These same insects have long been a plague in the plant houses of Schonbrunn, yet I believe have not spread much. It is to be hoped that they will not continue long in this new role in our country at Grand Rapids, and certainly that they will not carry this new habit to adjacent towns and cities.

THE RED SPIDER.—*Tetranychus telarius* Linn.—Family Trombididæ—Order Arachnida.—Before closing this paper, I desire to speak of the little red spider, which is not only a true mite, but truly a mite of a thing. This does not belong to the order of insects, but is classed with the spiders or arachnids. These inconspicuous little creatures, though easily destroyed, often do mighty mischief, and being so insignificant, are quite frequently entirely unobserved. For, resting as they do, on the under side of the leaves, it requires the closest scrutiny to see them at all, without the aid of a magnifier. The red spider is light yellow, with two lateral red specks upon the back. The female is larger, and bright chestnut in color. In common with all spiders it has, when mature, eight legs. Dampness is very inimical to the well-being of these pests, hence they only flourish in the dry, hot air of conservatories, or, in a very dry time, on the roses and evergreens which adorn our parks and gardens. Occasionally, too, they infest window plants, though I think this is not very frequent.

Remedies.—A very damp atmosphere has long been known to be very destructive to these noxious mites. Hence the subjecting of conservatory or window plants to extreme humidity, or frequently dipping the plants into tepid water, will frequently be all that is required to banish them from our floral treasures. On evergreens and other out-door plants, which are so often attacked during severe and protracted droughts, frequent drenching, or better syringing with a garden engine, forcing the water from below with considerable power, will prove very beneficial, if not entirely effective.

Some of us may remember with much satisfaction, how that the seven years' sojourn of another mite,—a near congener of the one under discussion, was happily cut short, by a free use of sulphur, and we freed of the itching desire to be free; whether or no this wholesome practice to rid us, of a disgusting human parasite, suggested the same to free us of the green-house pest, I know not, but true it is, that sulphur has long been esteemed as the most sure and perfect destroyer of the red spider.

Flower of sulphur is what is most used. This may be sprinkled on the plants, or rubbed on the heated flues. Of late it has been recommended, by Rivers, and other skillful gardeners of England, to put water on a bucket of lime, and sprinkle on sulphur, though care should be taken, as some by using

too much sulphur, have ruined many valuable plants. Great care must be taken not to ignite the sulphur, as the products of such combustion are very deleterious to all plants. What is desired is the volatilized sulphur, which, though fatal to the mite, is harmless to most plants, and which is secured by the mere application of heat. The sulphurous acid fumes, the result of ignition, on the other hand, are alike fatal to animal and plant.

Thus I close this address: hoping that I have added my *mite* in the promotion of æsthetic pursuits, and their glorious companion, æsthetic culture. Is he the greatest philanthropist, who supplants one blade of grass by two? Is not he a greater, who develops in the barren heart a thorough love for the great wealth of beauty, which the All Father has sown, broad-cast, all about us? As the impious soul, is, oh! how bereft! how poor! in not possessing the divine, far reaching love, so the heart, devoid of æsthetic culture, gets only a small part of those precious delights, which ought to come in glorious profusion from lake and flower, cloud and forest. What better work for this Society, than to cherish, in every possible way, this love of the beautiful; for

He prayeth best, who loveth best,
All things, both great and small;
For the dear Lord, who loveth us,
He made and loveth all.

THE APPLE TREE.

NOTES ON THE STRUCTURE AND GROWTH OF ITS FLOWERS AND FRUIT—DISTINCTIVE FEATURES OF FLOWERS AND SEEDS—THE USE WHICH CAN BE MADE OF THEM IN DESCRIBING APPLES.

BY PROF. W. J. BEAL, OF THE AGRICULTURAL COLLEGE, LANSING.

The structure and growth of the flowers and fruit of the apple tree is truly a poetic theme, but none the less of practical and scientific importance. How could any-one fail to be enthusiastic, with good eyes, a small microscope, some knowledge of botany, and a little time to spare among the apple blossoms? The day was a fine one. The buzzing bees and wasps were industriously gathering nectar "from every opening flower." Then, too, the thought that insects were increasing our prospects for fruit the coming season by carrying pollen from flower to flower to fertilize them, thus aiding in causing the fruit set. I wondered if they knew what they were about. I wished I could tell them they were welcome.

An apple orchard. What a theme! what a place for study; how much we have to learn. The noble apple has been fitly called the king of fruits.

Now, let us look at the flowers of the Red Astrachan. A few weeks ago each cluster of flowers was snugly tucked away in a single bud, termed a compound bud, because it contained several flowers. Simple buds contain but one flower, as the peach.

As the dry bud scales spread open, downy leaves unfold, and within these is revealed five to eight (usually six) flower buds. All these were planned out and started on a small scale last summer. By the side of each flower cluster, at the base, comes out one or more young branches, some of which, however, never amount to anything. Each flower is raised on a stem of its own, varying in length according to the variety of the apple. The center flower opens first, often a week or more, so it drops its petals, ceases to be a flower, and ranks as a young apple by the time its circle of sister flowers are making their best display. Such a cluster of flowers, having stems of about equal length; the oldest or first developed in the center is called a *cyme*.

Each young stem has on its sides, at the base, two little slender scales or bractelets, which soon wither and fall off, leaving two little scars on the sides of every apple stem.

The part above the little young apple consists of four sets of organs, one within the other. The outer is the calyx, the most showy part the corolla,

then the stamens and pistils. The number of each of these is five or some multiple of five. The outside circle of the flower consists in five little green points of the calyx. Within these, and alternating with them, are five showy petals constituting the corolla. Within the corolla are twenty slender stamens of unequal advancement. These, like the corolla, soon wither, but their dried remains may often be found in the apex of the ripe fruit. They contain little anthers at the top, full of a fine dust or powder, called pollen, which fertilizes the parts which afterwards are to become seeds. In the center of the flower are five slender objects united for nearly half their length above the apple. These are called styles. The center flower of many clusters is supplied with poor anthers, which furnish little or no pollen, or pollen apparently of poor quality, so this flower, if it set, must be fertilized with pollen from another flower. These center flowers are in the condition of some strawberries, like the Green Prolific and Hovey, they have no good anthers. Pollen is transferred freely by insects and the wind. This oldest center flower, just spoken of, is the one most likely to set. So far as I have noticed it seldom fails, unless all the others of the cluster fail. To be sure two or three more of them often become apples, or all of them in crab apples, but we very frequently get only one apple from a cluster, and that is this one from the center flower, the one so often provided with poor anthers. It gets the start of its fellows; its vigor is condensed in the pistil, as little of it is lost in stamens.

A cross section of a young apple reveals five papery cells, each with young seeds, near the axis of the apple. The normal number of seeds is ten, two for each cell. In cultivated varieties they vary from none to twenty, or perhaps more. The seeds of apples are attached at the smaller or pointed end. Near this point is always to be found the radicle of the embryo within the seed coats. They are known as *anatropous* in structure. The outer smooth, hard coat is called the *testa*, the inner is light colored and more delicate, and is called the *tegmen*. Outside of these five cells are seen, in all ripe apples, as well as in the young, ten small green dots or woody bundles, five of them are opposite the points of the cells, and five alternate with them. Cutting the apple vertically they may be seen to run from the stem, curving out and around the core, to terminate at the blossom. Five of these threads run from the stem and terminate in the sepals at the top of the apple, and the other five terminate in the petals. By a cross section five other green dots or woody bundles may be seen opposite the outer points of each cell. These I have traced to the five styles above the apple. Outside of these dots or threads is most of the edible part of the apple, which is the thickened calyx. The botanist understands the calyx, corolla, and stamens all to start at the top of an apple stem, and grow together for a while around the pistil.

We have seen it stated in the papers that there are over 3,000 varieties of apples described. Whether the number be more or less it is very rapidly increasing. It is quite a puzzle now to distinguish some of our varieties from each other, or to recognize the same varieties when raised in different States.

I have been looking over the flowers and seeds to see if there were any points of value to aid in defining varieties. The subject is not a new one. Every observing fruit-grower knows that some flowers have larger petals than others, that some are white, others deeply colored. Many must have also noticed the variations of seeds in number, size, color, shape, etc. Warder, in his Pomology, makes some use of the character of the seeds in describing apples, and says, "they are long or short, acuminate, or rounded, flat, angular, imperfect, plump,

large or small; they may be pale, even yellow, or brown, dark, and nearly black; and these shades are distinctive, often enabling the pomologist to decide upon the variety when other characters are less marked." In his book in describing the varieties he does not speak very definitely of the shape of the seeds. If there is anything to be made out of the variation of seeds, it will be of more practical value than the characters of the flowers, because the seeds we have with the ripe fruit and can examine them at the same time, while flowers must be looked over and described by a previous examination.

Downing, Thomas, and Barry, in their excellent works make no mention, that I am aware, of the shape, size, or color of the seeds, and no authors whose works I have met with make any use of flowers in describing apples. (Prof. B. exhibited seeds from apple pomace showing great difference in size and structure). My attention to the seeds was attracted some time ago in looking over some bought for starting a nursery, and afterwards I noticed carefully the seeds of apples which I ate. This I had done before I knew that any one had ever thought of the matter before. But we often invent and discover things many times over. So far as examined, I am convinced that the nature of the seeds are of great value in defining varieties; not in every variety, but in many. The seeds of many varieties are nearly alike, they have a common shape, but that is no reason why those with uncommon characteristics should not be noticed.

This is the way we do in describing wild plants, we seize upon all points which are characteristic. In some we make the most of the stamens, in others almost nothing of them; in others it is some peculiarity of the pistil or seeds which arrests our attention.

Peaches are often partially classified by the size and color of the petals. Barry says: "In all the other fruits, as in apples, pears, plums, cherries, etc., the flowers vary but slightly in form and color." He makes one exception of a pear, and says there are a few cases of variation in size. Thomas says "but little difference exists in the flowers." W. C. Flagg, of Illinois, in *Horticultural Report of Illinois for 1869*, and in *Hearth and Home, 1871*, records his observations on a large number of varieties of apple blossoms. He says: "White blossoms are generally early ones, red blossoms are usually on late varieties." He observes: "In a majority of cases color of blossom indicates the color of the apple. From these we can judge which apples are safest for a frosty country." Of very late flowers he mentions Melon, Northern Spy, Rawle's Janet and Rome Beauty.

The term flower, or blossom as the botanist considers it, consists of more than the showy petals. The petals are about one-fourth part of the flower. I will briefly describe some parts of the flowers taken from several different trees of each variety: The points of the calyx vary in breadth, size, and in other particulars, as any one can see by examining an apple. The petals are the largest and by far the most conspicuous part of the flower. That you may see, as well as hear of their differences, I have made paper models of several varieties as accurately as possible. No. 1 shows the proportions of a petal of the Red Astrachan. It is one and a fourth inch long by three-fourths of an inch broad in the widest place; it is ovate. No. 2 shows the shape of a petal of a Tallman Sweet, equally enlarged with the Red Astrachan. It is twelve-sixteenths by seven-sixteenths of an inch, and is elliptical. Its length is about the breadth of the Red Astrachan; the shape is different. No. 3 shows, on the same scale, a petal of the Porter. It is thirteen-sixteenths by twelve-six-

teenths of an inch, and nearly orbicular. It is also cordate at the base, very different from the first two, and different from most petals of other varieties examined. These three examples are from the first three varieties of apples examined. They grew within two rods of each other. I examined large numbers of petals of each variety. They were quite uniform in appearance. Of the flowers of the Astrachan and Tallman Sweet I examined those on several trees.

No. 4 shows, on the same scale, a petal of the Sweet Bough, seventeen-sixteenths by fourteen-sixteenths of an inch. It is broadly ovate or elliptical ovate, with a stem or claw longer than that of either of the other numbers. Certainly the botanist is often glad to find as good points as these petals show to help separate species and varieties of plants. I might add others, but these will answer my present purpose.

In the center of the flower above the apple I mentioned five small green slender objects called *styles*. On the Red Astrachans the styles are seven-twelfths of an inch long, united for one-third to two-fifths of an inch, and then diverging. They are slightly *pubescent* under the microscope where they all begin to separate. Above and below this point they are smooth. In the Tallman Sweet, the second variety of flowers examined, the styles are five-sixteenths of an inch long, on good fair sized flowers. They are united in one small column for half the length, then appear larger. The upper half of the five styles appear closely covered and bound together by a dense wooly substance, unlike the styles of any other variety examined. In the flowers of the Jersey Sweet the styles are short and stout. They are fully twice the diameter of healthy styles of the Seek-no-further.

I leave you thus abruptly in the centre of an apple blossom,—a delightful retreat for fairies, a place surrounded with delicate colors and perfumed with nectar,—a place full of promise of a rich autumn harvest.

GRAPE CULTURE.

A PAPER READ AT THE ADRIAN MEETING BY ARTIMUS SIGLER, ESQ.,
OF THAT CITY.

MR. PRESIDENT, LADIES AND GENTLEMEN:—There has been a diversity of opinions how to treat the vine, and make it produce a plenty of good fruit, and a few words will not be amiss upon the best mode of cultivating the foreign grape.

CULTIVATION OF THE FOREIGN GRAPE.

In preparing the soil before setting the vines, it has been my practice to spade the earth about two feet deep, and pulverize well. If the soil is reasonably rich, I use no manure before setting. But after the vines have got a good start I use manure freely on the surface of the earth, and keep putting it on yearly, as it answers a two-fold purpose, for a mulch and a feeder. The treatment of the vine the first year is to not let but one shoot grow, and pinch that one off about the last of August, so the wood will ripen up to stand our winter better. About the last of November or the first of December, I take the vines from the trellis, trim them, and bend them down and cover them from four to six inches deep in the earth, and leave them in this condition until the first or middle of April. Then I uncover the vines and wash them off clean with soapsuds, or use a force pump, which answers a very good purpose to wash the dirt off and to moisten the buds so they will develop more evenly. This should be done frequently until they are well leaved out. The second year I let two shoots grow, and treat them in the same manner as the first year, and then to the third year, when the anxious cultivator is looking to the opening of every bud to see if he is to be rewarded for a portion of his toils, which he is sure of if he performs his duty well. If you slight the grape vine it will remember you at the harvest time with an indignant refusal to give you one single cluster of well-developed fruit. So it is in every department of horticulture. The earlier we learn this lesson, whatever is worth doing at all, is worth doing well, the better.

After the third year, you have encouraged the growth of the vine to its fullest capacity in length, say eight or ten feet, which should never be allowed to extend further than this, on any condition whatever, for fear of letting it overbear. The over-indulgent cultivator is apt to spoil his fruit, and also the future usefulness of the vine, by over-taxation. I have spoiled several of mine, before I could learn this sad lesson.

BEST VARIETIES OF NATIVE GRAPES.

A few remarks upon the best varieties of native grapes for this latitude, perhaps, would not be uninteresting to some. The first of all the native

varieties is the Concord; next the Delaware; Hartford Prolific for early, but not first-class; Diana, for keeping qualities, is No. 1; Creveling should be in the list, and the Croton comes highly recommended from different sources, but not fully tested here. The Iona is a good grape, but not hardy. The Clinton is valuable for jelly and wine, and its keeping qualities are good.

THE SYSTEM OF PRUNING

the native grapes is the same as the foreign, which I left off at the third year. I have always adopted the spur mode of pruning the vine, as it appeared to me to be the most reasonable, and that is to cut off in the fall, the present season's growth of wood, to the third eye on each spur. This is the manner that I have always practiced since I commenced the cultivation of the vine, and I have been very successful in getting plenty of good fruit. If I think the vitality of the vine requires more wood, I let the end branches extend a little farther at the time of pruning, but more often make mistakes in getting too much bearing wood, than otherwise.

THE WHITE MUSCAT, A FOREIGN GRAPE.

I cannot refrain from expressing my gratitude to the All-wise Giver of every good and perfect gift, for the happy bestowment of this most precious variety, the White Muscat, of Alexandria. It seems as if this was the last and most perfect work of God, of the vine to man. It is with this class of fruit what the Seckel is to the pear.

PROGRESS IN GRAPE CULTURE.

The cultivation of fruit is one of the most interesting pursuits that can engage the mind of man. It furnishes an endless variety of objects for contemplation, constantly exciting his wonder, and leading forth his soul in adoration of the providence, wisdom, and goodness of that Almighty hand which bespangles the heavens with radiant orbs, and carpets the earth with living gems, no less brilliant and wonderful. Whether we study the canopy above, or the earth beneath, with all the beautiful flowers that spring up with the first impulse of spring, when all nature seems to teem with gladness, we are filled with adoration at the order and infinitude of His works. Pause for a moment, and look back a few years, and note the improvement in the cultivation of the grape. There was but the Clinton, Isabella, Catawba, and a few other varieties known. And compare them now with the hundreds of varieties that grace our tables all over the land. There is one cultivator in California alone that is said to produce over one hundred and eighty varieties. And, who can predict the improvement in this one class of fruits for one generation to come? I have, in my collection, over fifty varieties of grapes, some over thirty of which are of foreign species. I commenced the cultivation of the foreign grapes about fifteen years ago, with only two varieties,—the white and black Hamburg,—and I have been adding to their number from year to year, as new varieties have been introduced, until I have the above-mentioned number. Every year brings to notice something new. In Switzerland there is a law that compels every young man to plant six trees immediately after getting married, and also to plant two more at the birth of every child. They are planted on the commons, and near the road-side. And, as they are mostly fruit-bearing trees, there would be no scarcity of fruit. This makes over ten thousand trees annually. And if our own State would adopt this custom, it would be a very great advance in the art of horticulture, and also prevent a

great deal of this petty fruit-stealing by the poorer classes. But the American people are too closely confined to money-making to look after the welfare of their neighbors' interests. Whatever pleasure may be derived from other pursuits there is certainly none that has afforded stronger evidence of a high and prosperous state of civilization, or a more ennobling influence, than the cultivation of fruits. From the day when God gave our father in Eden trees pleasant to the sight, and good for food (except one), down to Solomon, who said, "I made me gardens and orchards, and planted in them trees of all kinds," and through the successive generations of men, the cultivation of trees and plants has been the criterion of taste and refinement. And what greater benefactions can you leave for posterity than these memorials which shall live and tell of your love for the most beautiful works of nature when you are slumbering in your grave. It is not difficult to see that I am somewhat of an enthusiast in grape culture, imbued with a true love for the luscious fruit. It is so very natural for such a one to begin with wanting only a few good things, and end with a craving for everything that grows. I used to be just so in fact, and I am more so still. It seems as if there was no end to this most enchanting of all pursuits of rural life. I have been in search of these tokens of God's love to man all of my life. A beautiful home is the center of all attraction that will endure; it is the one fashion that will never change. And how can we make home pleasant and attractive without fruit or flowers?

THE TRUE HOSPITALITY OF THE HORTICULTURIST.

Allow me to digress from the subject. All genuine hospitality flows from the spirit of natural politeness and kindness. How miserably we fail as long as we weary ourselves to death in the entertainment of our friends, like poor old Aunt Ruth, so troubled about her dinner that she could not give a moment's time for the entertainment of her friends that sat at her board. But let us provide all of the luscious fruits that our beautiful earth will produce, and bring them into our household, and then open our doors and hearts for our friends to come in, making our own faces so radiant with welcome that no body will care whether they dine sumptuously from the latest style of porcelain, or eat bread and fruit from grandmother's service of pewter, that used to sparkle on the open shelves in olden time. Michigan hospitality to-day needs especially the lesson of that visit of Jesus to the home of Martha, in far off Bethany, where everything that was done was done with cheerfulness and pleasure.

So it should be with the true and genuine horticulturist. I know of no better temporal acquisition than a happy rural home. A home where you may sit amid the fruiting of trees, and the flowering of your plants. A home embellished by your own taste, and endeared by the loved ones of your own family. A happy country home where you may find enjoyment, not in hungry greed for gold, not in the conflicts for political distinction, not in the strife for place, power, or renown. For over twenty-five years of my life I have tried the busy marts of trade. But whenever I could rescue a little time from the cares of business, whether at rosy morn, or golden noon, or declining day, I have fled to the garden and grape-house, to my favorite vines and plants, that I might commune and co-operate with nature in her secret laboratory of wonder-working powers. This is my idea of a happy home. And this is my idea of a happy man: he who is contented with fruits and flowers reared by his own care, with congenial friends, and a good conscience toward God and his fellow

men. And it has ever appeared to me that contentment and happiness were easily acquired by all who really love the cultivation of these lovely objects.

Where the flowers and trees are waving,
Birds will sing their sweetest song ;
Where the purest thoughts will linger,
Confidence and love belong.

Such a home makes man the better,
Sweet and lasting its control ;
Home, with pure surroundings,
Leaves the impress on the soul.

And let me add that I know of no more grateful, and I was about to say devotional feelings, than those which we enjoy, at the close of a quiet Sabbath summer day when we stroll along the bordered flowery walks, or sit in sweet converse under our trees and vines which our own hands have planted and nurtured, as the declining sun is fringing the western horizon with rosy promise of a fairer to-morrow, and parting day is hushing universal nature to repose. As I close I would say that I love the luscious grapes and all the pleasures and toils attendant upon the cultivation of this most precious fruit.

THE HONEY LOCUST AS A HEDGE PLANT.

BY J. W. HELME, PRESIDENT OF THE ADRIAN HORTICULTURAL SOCIETY

GENTLEMEN,—The following is a description of the *Gleditschia Triacanthus*, or three thorned Acacia, or Honey Locust: Thorns stout, often triple or compound, leaflets lanceolate-oblong, somewhat serrate; flowers greenish and very fragrant; blossoms middle of June; pods linear-clongated, from twelve to eighteen inches long; often twisted, filled with sweet pulp between the seeds. It was named in honor of Gleditsch, a botanist, cotemporary with Linnæus. Micheaux, a Frenchman, sent out by that government seventy years ago, predicted that it would become valuable as a hedge plant. In 1838 I found this tree growing on the Mississippi, from St. Louis to Wisconsin. Those on the Mississippi, I think, are not identical with ours, for they are less thorny, and the bark a darker color. A correspondent from Illinois states, that if they stand near the yellow locust they are affected with the borer, but ours are not, for a few years since all the yellow locusts in our city were destroyed by the borer, but the honey locust, standing side by side with them, were not affected in the least. They will grow on any soil, wet or dry, and will receive no injury from cold at 34° below zero. Such is my experience with the honey locust, as to its hardiness. Six years ago I set fifty rods one foot apart, cut back the second year to one foot from the ground, and it would turn stock in four years. To plant a hedge, gather the seeds in the fall; in April mix them with sand; keep them moist and warm until they sprout. Then sow in drills two inches deep; set the plants when one year old, cutting to within two inches of the ground. At the end of two years cut back to three inches, after which trim once a year. A man, with a pair of twelve inch shears, will trim eighty rods per day, and for a wind break I consider it invaluable. Cut back once a year, and then trim the sides to keep them tidy. I left ten rods of my hedge as an experiment, and it is now six years old, and from twelve to fifteen feet in height, and will turn all large stock. A correspondent of mine says he has been successful in setting plants three feet apart. I have no doubt a good hedge could be thus obtained, for the branches grow at nearly right angles with the trees, and they would have more room and light in this way, and thus be less apt to smother. A gentleman from Leonidas, St. Joseph county, writes, under date June 13: "I raised and set plants one hundred and seventy rods, in the spring of 1871; have trimmed it once, and now it is acknowledged, by all who have seen it, to surpass any hedge they have ever seen." And now, in conclusion, I would say, for a hedge, do not let it get over three feet high; and, furthermore, that time will prove it to be the only successful hedge plant for Michigan.

THE HONEY LOCUST—(GLEDITSCHIA TRIACANTHUS).

BY EDWARD H. BEEBE, GENEVA, KANE CO., ILL.

All the facts in regard to the growth and habit of this beautiful forest tree, —a native of our State,—seem to be as yet undetermined. Last spring the question was discussed in the *Prairie Farmer*, "Does Honey Locust Sprout?" Mr. Budd, of Iowa, stated that it did not sprout. "A Subscriber," writing from Edwardsville, Ill., states that it "does throw up veritable sprouts." Here are two direct contradictory statements. May not both be true, and that the difference in the habit of the tree is due to a difference in the locality and soil? "Subscriber" says: "My experience with the timber is from observation. I have some posts now that have rotted off inside of four years. I have seen Honey Locust posts sound and fresh after being in the ground over ten years, and have no doubt that they must have lasted, in many instances, from twenty even to twenty-five years. My observation teaches me that Honey Locust, to be valuable for fence posts, should be grown upon high, dry, clay land, and that those grown upon wet soils will not last long enough to pay for setting the posts." If these statements are true, we see that the durability of the timber is affected by the soil upon which it is grown. May not its tendency to sprout in some localities be due to the same cause? Eighteen months ago, I purchased my present residence, in the village of Geneva, in Kane Co., Ill. The lot contains over two acres. I found growing upon it fifteen Honey Locust trees, most of them having been planted thirty-five years ago. Making inquiries of previous occupants and neighbors, I was informed that the trees had never been known to throw up sprouts. In October, 1872, we cut down five of the trees. Two of them, seventeen inches in diameter, were cut two feet above the surface; the other three were cut at the surface. From none of the trees thus cut down have sprouts started; the soil is dry. There are some other facts in regard to this tree that I do not find in the botanical books. It is dioecious,—that is, having the male and female blossoms on different trees. Prof. Asa Gray says of *Gleditschia*: "Flowers polygamous."—We do not question the *fact*, if applied to varieties other than *G. Triacanthus*,—Honey Locust. There are ten trees of this variety on my grounds. All of them have flowers, but four only produce seed. Most of them are thornless, as you may see by these twigs taken from them. There is but one tree on the place that has thorns. The Honey Locust is never materially injured by insects. The locust borer (*Clytus robinæ*)—so fatal to the Black Locust—does not attack the Honey Locust. A brown beetle (*Lytta cineria*) feeds upon the leaves to a very limited extent, preferring the young and tender leaves. Last spring, some six hundred to eight hundred plants, from three to five inches in height, had come up from seed deposited in a corner of my garden. Observing, one day, that these young plants were covered with insects that were greedily devouring the leaves and young shoots, I called upon my neighbor, Dr. LeBaron, State Entomologist, to give me an introduction to my visitors. He did so, under the name of *Lytta cineria*. Thinking their room preferable to their company, I dissolved a table-spoonful of Paris green in a gallon of water, and gave the bugs and plants a sprinkling. The *Cineria* left instantaneously. Visiting the plants a few days afterwards, to see if my visitors had returned, I could not find a solitary bug. The remedy proved to be a most effectual one; it had driven off all the bugs, and *killed all the plants*. We have no knowl-

edge of the value of this tree for posts and timber, other than that stated by "A Subscriber." As a shade tree, we consider it among the best. It has a large, dense head, is not easily broken by storms, and is free from injury by insects. The tree is attracting some attention as a hedge plant, as the following will show:

HONEY LOCUST HEDGES.—Mr. Joseph Hoopes, one of the best pomologists of Pennsylvania, writes to the New York Tribune in relation to the Honey Locust as a hedge plant:

"The Honey Locust differs from the Osage Orange, it being a stouter and less branching hedge plant; therefore to insure a perfectly formed, and, what is of the greatest importance, an impervious barrier, trim severely while young and secure a thick growth at the bottom; or, as some of the growers insist upon doing, allow the young plants to grow at will for a year or two, and then cut down to the ground, thus obtaining a stronger growth. Knowing so well the benefits of the old system, so long tested and proven satisfactory, I prefer to abide by it for the present. This branching from the ground is the most desirable feature in the work,—in fact it is indispensable."

I N D E X.

INDEX.

A.

	PAGE.
Adrian Meeting,	479-515
Addresses, Lectures, Papers, and Essays—	
A. S. Dyckman, Inaugural at Lansing, January 21, 1873,	5-10
H. S. Clubb, on the Cherry,	44-9
W. J. Beal, on Advantages of an Arboretum,	55-9
Jer. Brown, on Apples,	71-3
On Garden and Wild Flowers,	107-13
B. Hathaway, on the Codling Moth,	80-3
H. W. Curtis, on Wind-breaks,	92-5
A. J. Cook, on Insects Injurious to Strawberries,	103-6
On Insects Injurious to Plants and Shrubbery,	496-504
President Phillips' Second Annual,	117-18
J. E. Bidwell, concerning South Haven,	119-22
Sanford Howard (late), on Fruit Culture at Grand Traverse,	123-6
L. H. Bailey (a lad), on Birds,	127-8
A. T. Linderman, on Orchard Drainage,	133-4
S. Q. Lent, on Orchards and Vineyards of Michigan,	207-15
T. T. Lyon, on Judge Ramsdell's Fruit Farm,	216-18
R. C. Kedzie, on Tree Protection,	290-1
A. S. Dyckman, at Battle Creek,	325-8
J. C. Holmes, Early History of Horticulture in Michigan,	337-48
T. T. Lyon, on Orchard Protection,	387-97
A. Bryant, on Ash and Larch,	433-40
E. Y. Teas, on European Larch,	441-2
C. V. Riley, on Entomology,	443-8
Wm. Le Baron, on the Bird Question,	449-56
T. J. Burrill, on Aggressive Parasitism of Fungi,	457-60
Addresses at Adrian,	479-515
A. S. Dyckman, on the Peaches of the Michigan Peach Belt,	481-6
J. J. Thomas, on Horticulture for the People,	487-95
W. J. Beal, on the Apple Tree,	505-8
A. Sigler, on Grape Culture,	509-12
J. W. Helme, on Honey Locust as a Hedge Plant,	513
E. H. Beebe, on the Honey Locust,	513-14
Ants,—White,	502-3
Apples—	
Essay by Jeremiah Brown,	71-3
The Eleven Summer Apples, by J. P. Thompson,	73-7
The Pimate,	79
The Baldwin,	240-1
The Wagener,	240-1
Trees Dying, Causes of,	288
The Rubicon, or Paw Paw,	319-20
Hardy,	324
Most Profitable Varieties,	406
Trees,	505-8
Apple-worm Trap,	444-8
Arboretum,—Paper by Prof. W. J. Beal,	55-9
Ash and Larch,	438-42

B.

	PAGE.
Bailey, Master L. H., Essay on Birds, ...	127-8
Banner County, ...	298
Bark Lice, ...	499-500
Battle Creek, Chilson Bro.'s Nursery, ...	215
Beal, Prof. W. J., on Arboretum, ...	55-9
On the Apple-tree, ...	505-8
Beebe, E. H., on the Honey Locust, ...	513-14
Bidwell, J. E., Address concerning South Haven, ...	119-22
Birds and Insects, ...	257, 361-2
Birds, Master L. H. Bailey's Essay, ...	127-8
Bird, the "Bird Question,"	449-56
Birds, Useful, ...	257
Blackberries, Winter Protection of, ...	406
Most Profitable, ...	410
Blight, in the Pear, ...	143-4
Borer,—Apple	257-8
Peach, ...	288
Brown, Jer., on Apples	71-3
Brown, Jer., on Garden and Wild Flowers, ...	107-13
Bryant, Arthur, on Ash and Larch, ...	438-40
Burrill, on Aggressive Parasitism of Fungi, ...	457-60

C.

Chamberlain, J. E., Letter on Peach Yellows, ...	23-7
Cherries, ...	44-9
Most Profitable, ...	408
Circle of Fruits, ...	487-8
Clubb, H. S., Letter in Answer to Peach Circular, ...	28-9
Address on the Cherry, ...	44-9
Codling Moth, remedies for, ...	366-8
Hathaway, on, ...	80-3
Protection Against, ...	350-1
Trap, ...	297
Collection of Fruit, What Constitutes a, ...	253
Collins, L., Letter on Peach Yellows, ...	23
Cook, Prof. A. J., Essay on Insects Injurious to Strawberries, ...	102-6
Paper on Noxious Insects, ...	496-504
Counties, Products of Several, ...	298
The "Banner" County, ...	298
Creation, Works of, ...	494
Cultivation, Deep and Shallow, ...	90-2
Time of Ceasing in Orchards, ...	91-2
Currants, Most Profitable, ...	410-11
Curtis, H. W., Address on Wind-breaks, ...	92-5

D.

Day, John E., Letter on Fruit Crop in Macomb County, ...	237-8
Deciduous Trees, New and Rare, ...	422-6
Decline of Varieties, ...	399-403
Dietrich, C. J., Letter in Answer to Peach Circular, ...	29
Dignity of Intelligent Labor, ...	5-10
Diseases—	
Of the Peach Tree, ...	11-43, 282
Of the Pear Tree, ...	368-70
Downing, A. J., on Yellows in Peaches, ...	38-43
Downing, Chas., Letter on Peach Yellows, ...	38
Drainage, Orchard, ...	133-4
Dried Fruit, ...	247-8
Dwarf Ornamental Trees, Shrubs, etc, ...	415-26
Dyckman, A. S.—	
Address at Lansing, January 21, 1873, ...	5-10
Letter on Peach Yellows, ...	21-2
Address at Battle Creek, December 2, 1873, ...	325-8
Address at Adrian on the Peaches of the Michigan Peach Belt, ...	481-6

E.

PAGE.

Engle, C., Letter in Answer to Peach Circular, ...	28
Entomologist, Necessity of a State, ...	129-32
Entomology, by Prof. Riley, ...	443-8
Essays, see Addresses, etc,	
Evergreens, Pruning of, ...	411-12
New and Rare, ...	424
Best, ...	412
Ornamental, ...	415-26
Excursion to the College, ...	241

F.

Fabnestock, A., Letter on the Primate Apple, ...	78-9
Fairs, Policy of Union, ...	223-4
Fertilizers, ...	357-9
Fewer Varieties and Larger Orchards, ...	313
Figs, ...	252
Flies, Green and Black, ...	497-9
Flowers at State Fair, ...	225-8
Frost-killed Trees, How to restore, ...	264, 306
Fruit, New Varieties of, ...	51, 114-16
Nomenclature of, ...	114-16
Dried, ...	247-8
What Constitutes a Collection of, ...	253
Preserving, ...	377-9
Fruit Growing at South Haven, ...	117-22
Fruit Culture at Grand Traverse, ...	123-6
Fruit Buds, ...	250-1, 272
Fungi, Parasitism of, ...	457-60
Fungus Not the Cause of Disease, ...	84
(See also Yellows in Peaches, pp. 11-43.)	

G.

Garden and Wild Flowers, ...	107-13
Grading of Orchards and Vineyards, ...	207-8
Grafting—	
In top, ...	84-6
Grand Rapids, ...	211-12
Grand Rapids Eagle's Account of J. M. Dean's Peach Orchard and Grapery, ...	219-20
Grand Traverse, Fruit Culture at, ...	123-6
Grand Traverse Fruit Farm, ...	216-18
Grand Traverse Union Agricultural Society, ...	315-18
Grapes—	
Paper by T. T. Lyon, ...	60-70
Grapery in Kent County, ...	219
Sundry Crops in 1872, ...	245
For Wine, ...	262
Best and Hardest, ...	327, 509-10
Pruning, ...	379-80
Winter Protection of, ...	404
Most Profitable, ...	408
Culture, ...	509-12
Grass for Orchards, ...	374-5
Gum, Should it be Removed from Trees?	357

H.

Hanford & Co., Letter in Answer to Peach Circular, ...	28
Hathaway, B., Essay on Codling Moth, ...	80-3
Hedge Plant, Best Deciduous, ...	412
Best Evergreens for, ...	412
The Honey Locust, ...	513-15
Helme, J. W., on Honey Locust as a Hedge Plant, ...	513
Henrietta Vineyard, near Monroe, ...	221-2
History (Early) of Horticulture in Michigan, ...	337-48
Holmes, J. C., Early History of Horticulture in Michigan, ...	337-48
Honey Locust as a Hedge Plant, ...	513-15

	PAGE.
Horticulture for the People, ...	487-95
In Michigan, Early History of, ...	337-48
Pleasures of, ...	494-5
Hospitality of the Horticulturalist, ...	511-12
Howard, Sanford (late), Paper Concerning Fruit Culture at Grand Traverse, ...	123-6
Husted, J. D., Letter in Answer to Peach Circular, ...	30
I.	
Insects Injurious to Strawberries, ...	102-6, 286, 264-6
Insects, Various, ...	356-7
And Birds, ...	257, 361-2
Difficult to Conquer, ...	491-2
Injurious, Prof. Cook's Paper, ...	496-504
K.	
Kalamazoo County, History of Fruit Culture in, ...	382-6
Col. Wheadon's Vineyard and Bragg & Co.'s Nursery, ...	212-13
Kedzie, Dr. R. C., Address on Tree Protection, ...	290-1
Kent Scientific Institute, Letter from, ...	323
L.	
Labor, dignity of intelligent, ...	5-10
Lake Shore Agricultural and Pomological Society, Report of, ...	50-4
Larch and Ash, ...	438-42
Larch, European, ...	441-2
Lay, E. D., Letter From on Peach Yellows, ...	20
Leaf-roller, Strawberry, ...	104-5
Le Baron, on the Bird Question, ...	449-56
Lectures, see Addresses, etc,	
Lent, S. Q., Papers on Orchards and Vineyards of Michigan, ...	207-15
Letters—	
E. D. Lay, on Peach Yellows, ...	20-1
A. S. Dyckman, on Peach Yellows, ...	21-2
A. R. Nowlen, on Peach Yellows, ...	22
L. Collins, on Peach Yellows, ...	23
J. E. Chamberlain, on Peach Yellows, ...	23-7
T. T. Lyon, on same, ...	27
C. Engle, in Answer to Circular to Peach-growers, ...	28
I. S. Linderman, in Answer to Circular to Peach-growers, ...	28
Hanford & Co., in Answer to Circular to Peach-growers, ...	28
H. S. Clubb, in Answer to Circular to Peach-growers, ...	28-9
C. J. Dietrich, in Answer to Circular to Peach-growers, ...	29
D. R. Waters, in Answer to Circular to Peach-growers, ...	29
S. B. Peck, in Answer to Circular to Peach-growers, ...	30
J. D. Husted, in Answer to Circular to Peach-growers, ...	30
S. L. Morris, in Answer to Circular to Peach-growers, ...	31
Chas. Downing, on Yellows in Peaches, ...	38
A. Fahnestock, on the Primate Apple, ...	78-9
L. H. Trask, on the Primate Apple, ...	79
James Vick, on Certain Flowers, ...	225-8
John E. Day, on Fruit Crop in Macomb County, ...	237-8
Myron H. Norton, on the Baldwin and Wagener Apples, ...	240-1
Judge Ramsdell, ...	322-3
Kent Scientific Institute, ...	323
Lice, Plant, ...	497-9
Bark or Scale, ...	499-500
Linderman, A. T., on Orchard Drainage, ...	133-4
Linderman, I. S., Letter in Answer to Peach Circular, ...	28
Locust as a Hedge Plant, ...	513-15
Lowell, ...	212, 214
Lyon, T. T.—	
Letter on Peach Yellows, ...	27
Paper on Grapes, ...	60-70
Description of Judge Ramsdell's Fruit Farm, ...	216-18
Paper on Fruit Protection, ...	387-97

M.

	PAGE.
Macomb County Fruit Crop, ...	237-8
Meetings of State Pomological Society, ...	233-334
(See State Pomological Society,)	
Meteorology, ...	388-91, 393-6
Michigan's Advantages, ...	495
Mildew on Peach Trees, ...	16
Monroe, ...	213, 214
Nursery of Ilgenfritz & Co., ...	221
Nursery of Reynolds, Lewis & Co., ...	221
Monroe County Vineyards, ...	231-2
Morris, S. L., Letter in Answer to Peach Circular, ...	31

N.

New York (Western) Horticultural Society, ...	398-426
Nomenclature of Fruits, ...	114-16
Norton, Myron H., Letter on the Baldwin and Wagener Apples, ...	240-1
Novelties in Tree Ornamentation, ...	415-26
Nowlen, A. R., Letter on Peach Yellows, ...	22
Nurseries, ...	213-15, 339-41
Great Extent of, ...	489-90

O.

Ode to Pomona, ...	291-2
Officers of State Pomological Society, ...	234, 329
Of One Hundred, How Many?	139-42
Orchards—	
At Old Mission, ...	229-31
Drainage, ...	133-4
Grasses, ...	374-5
Products of Michigan, ...	461-77
Products of Several Counties, ...	298
Protection, ...	387-97
Seeding, ...	374-5
Orchards and Vineyards of Michigan, ...	31-7, 207-15

P.

Papers, see Addresses, etc,	
Parasitism of Fungi, ...	457-60
Peach—	
Diseases of, ...	11-43, 282
Yellows in, ...	11-43, 253, 260-1
Mildew on, ...	16, 28
Circular to Growers, ...	20
Letter from E. D. Lay, ...	20
Varieties, ...	51, 114-16
Orchard in Kent County, ...	219
Buds, ...	241-2
Sundry Crops in 1872, ...	245
How Trees are Killed, ...	285
Festival at South Haven, ...	295-308
Snow's Orange, ...	321
Planting, ...	349-50, 373-4
Pits, ...	349-50
Miscellaneous Matters, ...	349-82
Dying Trees, ...	362-4
Protection for Winter, ...	371-2
Tree Heading, ...	376-7
Most Profitable, ...	407-8, 410
Peaches of the Michigan Peach Belt, ...	481-6
Pears, Hardy, ...	324-5
Trees, Culture, Diseases, etc, ...	368-70
Most Profitable, ...	407
Blight, ...	143-4

	PAGE.
Peck, S. B., Letter in Answer to Peach Circular, ...	30
Peninsular Farmers' Club, ...	84-101
Election of Officers, ...	87
Phillips' (Pres.) Second Annual Address, ...	117-18
Planting Better Than Building, ...	492-3
Every Man Can Plant, ...	493
Of Trees, ...	414
Plant Lice, ...	497-9
Point aux Peaux Wine Company's Vineyard, ...	222
Pomological Society, Meetings of State, ...	233-334
(See State Pomological Society.)	
Pomona, Ode to, ...	291-2
Preserving Fruit, ...	377-9, 488
Products of Michigan, ...	461-77
Profitable Varieties of Fruits, ...	406-11
Proportion of the Various Fruits, ...	139-42, 266
Protection of Fruits, ...	387-97, 392-7
By Trees, ...	271, 290
Of Grape Vines, ...	404
Of Blackberries and Raspberries, ...	406
Pruning Trees When Transplanted, ...	411-12
R.	
Rainfall, ...	388-91
Ramsdell, Judge J. G., Letter from, ...	322-3
His Fruit Farm, ...	216-18
Raspberries, Winter Protection of, ...	406
Most Profitable, ...	411
Red Spider, ...	503-4
Riley, Prof. C. V., on Entomology, ...	443-8
Roadside Trees, ...	393
Rose Slug, ...	501
S.	
Scale Lice, ...	499-500
Seedlings, ...	247
Seeding Orchards, ...	374-5
Shelter for Fruits, ...	271, 290, 387-97
Shade, Cherry Tree for, ...	47
Shrubs, ...	415-26
Sigler, Artimus, on Grape Culture, ...	509-12
Signal Service, ...	259-61, 389
Slug, Rose, ...	501
Strawberry, ...	105-6
Societies—	
Lake Shore Agricultural and Pomological, ...	50-4
Peninsula Farmers' Club, ...	84-101
Soils, Treatment of Orchard, ...	402-4
South Haven Pomological Society, Discussions of, ...	349-82
South Haven Fruit Growing, ...	117-22
Spider, Red, ...	503-4
Spring Lake, Soule's Orchards, ...	211
State Entomologist, Necessity of a, ...	129-32
State Fair, 1873, ...	152-206
State Pomological Society Meetings—	
January, ...	235-54
February, ...	255-68
May, ...	269-74
June, ...	275-94
September (Peach Festival), ...	295-308
October, ...	309-18
December, ...	319-34
State Pomological Society, Election of Officers, ...	329
Officers of, ...	234

	Page
Statistics of Orchard Products of Michigan, ...	461-77
Sterling's (J. M.) Apple Orchard near Monroe, ...	222
Strawberries, Amateur Culture of, ...	135-8
Insects Injurious to, ...	102-6, 364-6
Leaf-roller, ...	104-5
Slug, ...	105-6
Most Profitable, ...	411
Miscellaneous, ...	327
Strawberries, The Nine—Wilson's Albany, Triomphe de Gand, Downer's Prolific, Lennig's White, Green Prolific, Agriculturist, Charles Downing, Michigan, and Kentucky, ...	427-37

T.

Teas, E. Y., on European Larch, ...	441-2
Text-book on Agricultural Meteorology, ...	394
Thomas, J. J., Address on Horticulture for the People, ...	487-95
Thompson, J. P., "The Eleven Summer Apples,"	73-7
Thrips, ...	501
Time, Best for Planting Trees, ...	414
Timber, Cherry, ...	48
Protection, ...	392-5
Top-grafting, ...	84-6
Trask, L. H., Letter on the Primate Apple, ...	79
Training of Trees, High and Low, ...	87-9
Transplanting, ...	95-101
Trap for Apple-worm, ...	444-8
Treasurer's Report, ...	145-51
Tree Protection, ...	271, 290
Planting, ...	393-4
Heading, ...	376-7
Pruning, ...	411-12

U.

Union Fairs, Policy of, ...	223-4
-----------------------------------	-------

V.

Varieties, New, of Fruit, ...	51, 114-16
Vick, James, on Sundry Flowers, ...	225-8
Vineyards of Michigan, ...	31-7, 207-15
In Monroe County, ...	221-2

W.

Waters, D. R., Letter in Answer to Peach Circular, ...	29
Western New York Horticultural Society, ...	398-426
Wheaton's (Col.) Vineyard at Kalamazoo, ...	212
White Ants, ...	502-3
White Grub, ...	103
Wier's Apple-worm Trap, ...	444-8
Wild Flowers, ...	107-13
Winds, ...	394-5
Wind-breaks, Curtis' Address, ...	92-5
Wine, ...	184-6, 249-50, 262
Grapes, ...	262
Winter Protection of Grape-vines, ...	404-6
Wood for Paper Manufacture, ...	414

Y.

Yellows in the Peach, ...	11-43, 253, 260
---------------------------------	-----------------

ILLUSTRATIONS.

	PAGE.
Insects, ...	103, 105
Austrian Pine, ...	188
Dahlias, ...	225
Phlox Drummondii, ...	226
Gladiolus, ...	227
Asters, ...	228
White-leaved Linden, ...	401
Purple-leaved Maple, ...	405
Magnolia Soulangeana, ...	409
Oak-leaved Mountain Ash, ...	413
Cut-leaved Weeping Birch, ...	417
Prunus Triloba, ...	421
American Arbor Vitæ, ...	423
Kilmarnock Weeping Willow, ...	425

New York Botanical Garden Library



3 5185 00259 0980

